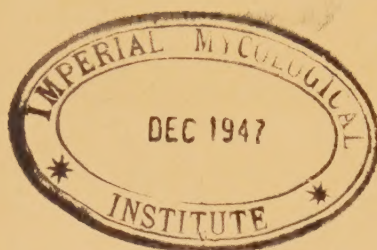


**British West Indies Central Sugar Cane
Breeding Station, Barbados.**



**TWELFTH
ANNUAL REPORT**
Ending September 30, 1945.

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PERSONNEL

DR. A. E. S. HARRISON, Chairman of the Station, left Barbados on leave in January, 1945, and was subsequently promoted to a post in the Department of Agriculture, Malaya. Mr. Harrison joined the Barbados Experiment Station in 1934 and during his tenure of office has been largely responsible for building and developing the system of cane breeding which has produced so many excellent varieties of cane during recent years. With the war-time material which is now available at Barbados and with the continued development of the policy formulated by Mr. Harrison, it is anticipated that further good varieties will continue to be produced for a long time to come. Mr. Harrison's departure will be generally recognized as a great loss to the West Indies and it is anticipated he will be missed in the Department of Agriculture, Malaya. Mr. Harrison's work is recorded in the annual reports. He has played a further important role in the work of the Station and his name will always be associated with cane breeding at Barbados.

J. R. R. R.

Director of Agriculture

Chairman of Advisory Committee

FOREWORD

ADVISORY COMMITTEE

The twelfth meeting of the Advisory Committee was held at Barbados from November 29 to December 1, 1944 and the Proceedings of the Committee have been circulated. At this meeting the constitution and functions of the Advisory Committee were reviewed. As a result of the decisions made, it will be possible, in the future, for the British West Indies Sugar Association to nominate a representative to this Committee. Mr. H. E. Robinson, Trinidad Director of the British West Indies Sugar Association, has been selected to represent the Association on the Advisory Committee for the year 1945-46.

It is gratifying to record that the sugar interests of British Guiana have decided to join the British West Indies Central Sugar Cane Breeding Station and arrangements are being made for the particular needs of this colony to be met by the Station.

FINANCE

In view of the increased work, involving additional expenditure, which is now being undertaken at the Station, the Committee decided to recommend that the Colonies of Jamaica, the Leeward Islands and the Windward Islands should be asked to increase their subscriptions which were proportionately below those of the other contributing colonies. These recommendations have been accepted by the colonies concerned and, with the inclusion of British Guiana, the subscriptions from the contributing colonies have been increased from £2,500 per annum to £4,335 per annum. In addition, it is estimated that the Barbados Government expends £5,500 per annum on cane breeding.

PERSONNEL

Dr. A. E. S. McIntosh, Geneticist to the Station, left Barbados on long leave in January, 1945, and was subsequently promoted to a post in the Department of Agriculture, Malaya. Dr. McIntosh joined the Barbados Department of Agriculture in 1928 and, during his tenure of office, has been largely responsible for initiating and developing the system of cane breeding which has produced so many excellent varieties of cane during recent years. With the wild cane material which is now available at Barbados and with the continued development of the policy formulated by Dr. McIntosh, it is anticipated that further good varieties will continue to be produced for a long time to come. Dr. McIntosh's departure will be generally recognised as a great loss to the West Indies and it is appropriate to record in this Foreword the high appreciation with which Dr. McIntosh's work is regarded by the sugar industry. He has proved a worthy successor to John R. Bovell and their names will always be associated with cane breeding at Barbados.

S. J. SAINT,
Director of Agriculture,

Chairman of Advisory Committee.

British West Indies Central Sugar Cane Breeding Station, Barbados.

TWELFTH ANNUAL REPORT FOR THE YEAR ENDING THE 30TH SEPTEMBER, 1945

SUGAR CANE BREEDING—SEEDLING SELECTION AND TRIALS

(i) SUGAR CANE BREEDING—B.47' SERIES

Sugar cane breeding was carried out at Lion Castle from October to December, 1944.

All breeding work consisted in crossing and the usual lantern method was employed. The season favoured heavy arrowing, and most of the desired crosses were obtained.

(ii) SEEDLING RAISING, POTTING AND PLANTING IN THE FIELD NURSERY—B.47' SERIES

The usual sowing and potting methods were used.

Sowing was done from December, 1944 to January, 1945, and potting was completed by the end of March, 1945. Potted seedlings were planted in the Field Nursery during the first two weeks of May, 1945.

Table I shows under group heads the numbers of seedlings germinated, potted and planted in the field nursery, while Appendix I gives these details for all crosses made.

TABLE I.

*Numbers of Seedlings in each Group Germinated, Potted and Planted in
the Field Nursery—B.47 Series*

Group	No. of crosses	No. germinated	No. potted	No. planted in field nursery
<i>S. officinarum</i> x <i>S. spontaneum</i>				
noble x glagah	9	18,918	1,882	1,422
noble x celebes x glagah	4	7,862	1,930	1,550
noble x glagah x local x celebes ..	1	290	192	150
<i>S. officinarum</i> x <i>S. barberi</i> x <i>S. spontaneum</i>				
noble x chunnee x glagah	16	35,735	6,626	5,727
noble x chunnee x local	2	4,034	427	410
noble x chunnee x celebes	3	6,679	960	756
noble x chunnee x glagah x celebes	2	3,526	840	709
<i>S. officinarum</i> x <i>S. Spontaneum</i> x <i>S. robustum</i>				
noble x glagah x robustum	3	3,373	632	555
noble x celebes x robustum	4	527	432	399

TABLE I—Continued

Group.	No. of crosses	No. germinated	No. potted.	No. planted in field nursery.
<i>S. officinarum</i> x <i>S. barberi</i> x <i>S. robustum</i> noble x chunnee x robustum ..	3	20	0	0
<i>S. officinarum</i> x <i>S. spontaneum</i> x <i>S. sinense</i> noble x glagah x sinense	5	7,090	561	516
noble x celebes x sinense	1	516	200	150
<i>S. officinarum</i> x <i>S. barberi</i> x <i>S. sinense</i> noble x chunnee x sinense	2	327	140	131
<i>S. officinarum</i> x <i>S. spontaneum</i> x <i>S. barberi</i> x <i>S. sinense</i> noble x glagah x chunnee x sinense	4	7,746	1,280	936
<i>S. officinarum</i> x <i>S. spontaneum</i> x <i>S. robustum</i> x <i>S. sinense</i> noble x glagah x robustum x sinense	1	4	0	0
<i>S. officinarum</i> x <i>Erianthus maximus</i> noble x erianthus	2	3	0	0
<i>S. officinarum</i> x <i>Erianthus arundinaceous</i> noble x erianthus	1	0	0	0
<i>S. Officinarum</i> x <i>S. spontaneum</i> x <i>Erianthus arundinaceous</i>	1	0	0	0
noble x celebes x erianthus ..	1	0	0	0
<i>S. officinarum</i> x <i>S. barberi</i> x <i>spontaneum</i> x <i>Erianthus arundinaceous</i> noble x chunnee x glagah x erianthus	1	0	0	0
<i>S. officinarum</i> x ? noble x Fiji 3.	1	0	0	0
Co. 281 and its Derivatives noble x chunnee x Co. 281	4	1,935	1,049	941
noble x Co. 281	1	14	0	0
noble x glagah x Co. 281	7	18,323	2,603	2,434
noble x chunnee x glagah x Co. 281	3	4,332	748	550
noble x celebes x Co. 281	6	13,986	2,810	2,054
noble x sinense x Co. 281	2	220	205	181
Co. 290 and its Derivatives Co. 290 x Co. 281	5	980	569	507
noble x glagah x Co. 290	8	9,387	1,020	801
noble x celebes x Co. 290	3	2,006	699	608
Co. 290 x Co. 290	2	353	297	279
noble x Co. 290	1	115	100	100
noble x chunnee x Co. 290	1	1,096	550	506
noble x sinense x glagah x Co. 290	1	5,977	1,620	1,620
noble x robustum x Co. 290 ..	2	83	76	75
Grand Totals	112	155,457	28,448	24,067

Extensive use as parents has been made of the Glagah nobilisations B.3337 and P.O.J.2878, the Celebes nobilisation—B.35197, the Chunnee nobilisation B.37161 and varieties of mixed derivations such as B.34104, and Co.421. These varieties as parents have given seedling progenies of a very high standard.

(iii) PLANTING THE FIRST YEAR SEEDLING TRIAL—B.44' SERIES

This series was bred in 1943, planted in the Field Nursery in May, 1944, and selections from the Field Nursery planted in the First Year Seedling

Trial in October, 1944. This trial will be harvested in 1946. Details for each of the crosses are given in Appendix II. A summary of this Appendix is presented in Table II.

TABLE II.

Numbers of crosses and seedlings in each group planted in the First Year Seedling Trial, October 1944—B46' Series.

Group	No. of crosses	No. of seedlings planted in trial
<i>S. officinarum</i>		
noble	1	0
<i>S. officinarum</i> x <i>S. spontaneum</i>		
noble x glagah	9	1,165
noble x celebes	1	180
noble x glagah x celebes	6	1,972
noble x glagah x celebes x local		240
<i>S. officinarum</i> x <i>S. barberi</i>		
noble x chunnee	1	0
<i>S. officinarum</i> x <i>S. robustum</i>		
noble x robustum	4	405
<i>S. officinarum</i> x <i>S. spontaneum</i> x <i>S. barberi</i>		
noble x glagah x chunnee	8	3,227
noble x local x chunnee	3	240
noble x glagah x local x chunnee	2	241
<i>S. officinarum</i> x <i>S. spontaneum</i> x <i>S. sinense</i>		
noble x glagah x sinense	4	242
<i>S. officinarum</i> x <i>S. spontaneum</i> x <i>S. robustum</i>		
noble x glagah x robustum	3	256
<i>S. officinarum</i> x <i>S. barberi</i> x <i>S. robustum</i>		
noble x chunnee x robustum	3	412
<i>S. officinarum</i> x <i>S. barberi</i> x <i>Sorghum</i> sp.		
noble x glagah x sorghum	1	12
<i>S. officinarum</i> x <i>S. spontaneum</i> x <i>Sorghum</i> sp.		
noble x glagah x sorghum	1	0
<i>S. officinarum</i> x <i>S. barberi</i> x <i>Erianthus arundinaceus</i>		
noble x chunnee x erianthus	1	39
<i>S. officinarum</i> x <i>S. barberi</i> x <i>S. spontaneum</i> x <i>S. sinense</i>		
noble x chunnee x glagah x sinense	1	150
Co. 281 and its derivatives		
noble x chunnee x Co.281	3	1,123
noble x celebes x Co.281	3	1,723
noble x glagah x Co.281	9	1,450
noble x sinense x Co.281	2	120
noble x glagah x robustum x Co.281	1	116
Co.290 and its derivatives		
Co.290 x noble	1	60
Co.290 x noble x glagah	16	2,769
Co.290 x noble x chunnee	1	200
Co.290 x Co.281 x glagah x noble	1	90
Co.290 x glagah x chunnee x noble	1	240
Co.290 x Co.290	1	336
<i>S. officinarum</i> x <i>S. barberi</i> x <i>N.C.100</i>		
noble x chunnee x N.C.100	1	44
Totals	89	17,052

This trial was planted in five randomised blocks, the seedlings from each cross being, as far as possible, evenly distributed between each of the blocks, except where the total population for a cross numbered 100 or less, when all the seedlings were planted together in Block I.

(iv) RESULTS OF REAPING THE FIRST YEAR SEEDLING TRIAL—B.45' SERIES.

These were bred in 1942, planted in the Field Nursery in May 1943 and from this into the First Year Seedling Trial in October, 1943.

The seedlings were cut, bundled and laid out for inspection, and selections were made as in recent years. A total 319 seedlings were selected.

Table III gives details of the field and final selections within the various crosses.

TABLE III

First Year Seedlings—B.45' Series
Field and Final Selections

Cross	No. of Seedlings reaped	No. Selected in Field	% Field Selection	No. Finally Selected	% Final Selection
B.3274 x B.34104 ..	730	27	4	13	2
B.3354 x B.34104 ..	872	27	3	13	1
B.3353 x B.35275 ..	50	5	10	2	4
B.3353 x B.37256 ..	360	16	4	2	1
B.3353 x B.40175 ..	320	18	6	6	2
B.3353 x Co.290 ..	482	12	2	2	—
B.3353 x 32 M.Q.629 ..	28	1	3	1	3
B.3353 x 28 N.G.251 ..	7	2	29	1	14
B.3354 x B.34104 ..	910	59	6	23	3
B.3365 x B.35187 ..	410	14	3	5	1
B.3365 x B.37261 ..	87	1	1	1	1
B.3365 x B.39220 ..	100	2	2	2	2
B.3365 x B.39257 ..	39	2	5	1	3
B.3365 x B.41242 ..	150	10	7	4	3
B.3365 x B.41276 ..	100	7	7	1	1
B.3365 x 32 M.Q.657 ..	121	6	5	3	2
B.3371 x B.34104 ..	495	33	7	18	4
B.3371 x B.37193 ..	445	43	10	11	2
B.3371 x Co.290 ..	45	4	9	—	—
B.3392 x B.34104 ..	305	18	6	7	2
B.3439 x B.(30)L7 ..	728	40	5	20	3
B.3439 x B.37261 ..	125	7	6	3	2
B.3439 x B.39252 ..	50	5	10	3	6
B.3439 x B.41235 ..	200	3	2	1	1
B.3439 x Co.419 ..	132	10	8	6	4
B.3439 x 32 M.Q.135 ..	50	3	6	3	6
B.3439 x 32 M.Q.579 ..	200	9	5	5	3
B.3439 x Early Bas-com ..	14	—	—	—	—
B.3439 x Crop ..	13	1	8	1	8
B.35206 x B.34104 ..	449	35	8	14	3
B.35206 x B.37256 ..	300	30	10	7	2

TABLE III—Continued

Cross	No. of Seedlings reaped	No. Selected in Field	% Field Selection	No. Finally Selected	% Final Selection
B.35206 x Co.290 ..	179	11	6	4	2
B.35206 x 32 M.Q.629 .	200	11	6	5	3
B.35207 x B.39156 ..	150	10	7	3	2
B.35207 x Pasoeroean ..	157	5	3	3	2
B.37161 x B.35187 ..	25	1	4	—	—
B.37161 x B.35276 ..	125	12	10	6	5
B.37161 x B.37224 ..	232	9	4	5	2
B.37161 x B.37254 ..	150	20	13	5	3
B.37161 x B.37256 ..	300	20	7	5	2
B.27266 x Co.290 ..	15	2	13	—	—
B.38187 x B.34104 ..	150	4	3	3	2
B.38203 x B.34104 ..	680	27	4	13	2
B.38233 x B.34104 ..	357	29	8	15	4
B.38260 x B.34104 ..	349	14	4	5	1
B.38272 x B.34104 ..	242	23	10	7	3
B.39157 x P.O.J. 2878 .	200	19	10	10	5
B.39177 x B.34104 ..	63	2	3	1	2
B.39211 x B.34104 ..	100	7	7	3	3
B.39223 x B.34104 ..	200	13	7	2	1
B.39254 x B.34104 ..	50	8	16	4	8
B.39254 x Co.290 ..	200	18	9	6	3
B.39254 x P.O.J.2878 .	80	9	11	5	6
B.4092 x B.37193 ..	485	50	10	18	4
Co.281 x B.H.10(12) .	65	8	12	1	2
Co.421 x B.34104 ..	513	23	4	10	2

As a result of this trial, it has been decided that the following crosses will not be repeated, as the percentage of seedlings selected from their progenies is not sufficiently large:—

B.3353 x B.34104	B.35207 x B.39156
B.3353 x Co.290	B.37161 x B.35187
B.3365 x B.35187	B.37161 x B.37256
B.3365 x B.41276	B.38260 x B.34104
B.3371 x Co.290	B.38272 x B.34104
B.3439 x B.41235	B.39233 x B.34104
B.35206 x Co.290	Co.281 x B.H.10 (12)

In addition it has been decided to discard B.35187 as a parent.

(V) PROGRESS WITH SEEDLINGS OF THE B.44' SERIES

The 349 selections made in 1944 were planted in ten cane hole multiplication plots, and in October of the same year a further selection was made, the number then being reduced to 287. These seedlings were then divided in half, one half being planted at the low rainfall station—Codrington—and the high rainfall station—Todds, and the other half at the low rainfall station—The Home, and the high rainfall station—Bowmanston. The standard varieties used were as follows:—

Codrington & <i>The Home</i>	B.37161
Todds and Pool —	B.37161 and B.4098

(vi) PROGRESS WITH SEEDLINGS OF THE B.43' SERIES

These seedlings were planted in the Second Year Seedling Trials in October, 1943, at the low rainfall station—Codrington (2 trials) and at the high rainfall stations, Cliff and Todds. Owing to labour troubles weeds got on top of one of the trials at Codrington, resulting in a very poor germination and very poor subsequent growth. Accordingly, plants were cut from these seedlings in October, 1944, and the trial was replanted at Codrington. The trial at Todds was burnt during labour disturbance in February, 1945. Unfortunately it is not possible to replant this, but it will be harvested as ratoons, which together with the data obtained from Codrington will enable tentative selections from Codrington to be confirmed or otherwise.

For the first time, 288 seedlings were included in these trials as against the normal number of 144. This would have doubled the size of the trials, and as it was not possible to find sufficiently large fields suitable for accommodating these trials, the number of replicates has been reduced to three, while the seedlings themselves were divided into sixteen groups, each group consisting of eighteen seedlings and two standard varieties.

In all, forty-four seedlings have been tentatively selected, and these will be sent to the Plant Quarantine Station in Trinidad for distribution to contributing Colonies, while certain of them will be included in Third Year Seedling Trials in Barbados to be harvested in 1947.

The performances of the selected seedlings and the standard varieties used are presented in Tables IV and V.

TABLE IV.

CENTRAL SUGAR CANE BREEDING STATION SECOND YEAR
SEEDLING TRIAL — B.43' SERIESCODRINGTON — PERFORMANCES OF STANDARDS AND
SELECTED SEEDLINGS

(Figures given are the means of three plots)

Harvested:— 6th — 10th February, 1945

Group	Seedling	Parentage	Mean No. of Canes per Plot (Rotten)	Percent arrow- ing	Z.H.R. Brix	Mean Yield tons per acre
I 4306	B.37161 (a)	Standard	108 (4)	2	19.5	54.24
	B.37161 (b)	"	100 (3)	5	21.1	47.14
	B.4360	B.35206 x P.O.J. 2878	142 (2)	51	21.3	52.03
II	B.37161 (a)	Standard	92 (1)	4	20.3	39.84
	B.37161 (b)	"	78 (0)	23	21.1	34.37
	B.4327	B.34102 x B.3337	137 (0)	9	21.4	40.90
	B.4329	" x "	121 (3)	50	18.5	44.35
III	B.37161(a)	Standard	75 (0)	7	21.2	38.12
	B.37161 (b)	"	79 (0)	3	20.7	38.59
	B.4362	B.37161 x P.O.J.2878	111 (1)	21	21.9	44.83
	B.4363	" x "	95 (1)	1	21.2	37.92
IV	B.37161 (a)	Standard	80 (0)	7	21.2	34.27
	B.37161 (b)	"	100 (4)	23	20.9	45.89
	B.4373	B.3354 x Co.290	154 (0)	58	20.8	46.66
	B.4374	" x "	117 (1)	49	20.6	46.85
	B.4380	" x "	149 (2)	67	22.1	45.02
	B.4381	" x "	138 (2)	40	21.0	47.42
	B.4392	B.35197 x P.O.J. 2878	110 (0)	46	22.5	39.36
VI	B.37161(a)	Standard	67 (2)	—	21.0	31.68
	B.37161 (b)	"	96 (1)	—	20.1	40.61
	B.43127	B.37227 x B.3337	168 (1)	52	18.5	52.32
	B.43133	B.35247 x B.3337	147 (0)	—	19.5	48.38
	B.43139	B.35197 x Co.281	91 (8)	25	22.2	39.36

TABLE V
*Cliff—Performances of Standards and Selected Seedlings
 Harvested 3rd—7th April, 1945*

Group	Seedling	Parentage	Mean No Canes per Plot (rotten)	Per cent arrow- ing	Z.H.R. Brix	Mean Yield Per Acre.
IX	B.37161	Standard ..	158 (6)	24	21.8	44.38
	B.34104	" ..	145 (28)	57	23.8	47.90
	B.43204	B.37227 x P.O.J. 2878	131 (7)	71	20.7	43.86
	B.43214	B.3353 x Co.290	153 (11)	73	21.1	48.42
	B.43218	B.3354 x Co.290	163 (4)	75	23.6	45.75
	B.43229	B.3365 x B.34104	107 (9)	—	24.3	38.87
X	B.37161	Standard ..	95 (5)	14	21.8	37.58
	B.34104	" ..	118 (22)	58	22.1	37.84
	B.43234	B.3365 x B.34104	80 (5)	30	21.6	38.96
	B.43235	" x "	105 (22)	—	22.3	40.76
	B.43253	B.3439 x B.37175	128 (10)	51	24.1	39.99
	B.43254	B.3439 x Co.290	160 (18)	56	22.4	44.81
	B.43255	" x "	175 (9)	87	19.8	48.93
XI	B.37161	Standard ..	100 (14)	15	21.7	40.76
	B.34104	" ..	147 (22)	58	23.6	46.44
	B.43261	B.34102 x B.3337	136 (6)	76	22.0	43.77
	B.43262	" x "	116 (27)	63	20.0	41.45
	B.43275	B.35187 x B.34104	128 (25)	28	20.3	39.22
	B.43280	" x "	114 (9)	54	22.5	40.42
XII	B.37161	Standard ..	84 (8)	25	22.0	36.72
	B.34104	" ..	160 (25)	30	21.8	44.20
	B.43283	B.35197 x B.34104	182 (4)	45	20.2	42.48
	B.43290	" x "	149 (8)	55	26.3	40.42
	B.43295	B.35197 x B.38285	152 (25)	36	22.3	40.85
XIII	B.37161	Standard ..	85 (13)	40	20.7	34.31
	B.34104	" ..	135 (24)	58	23.4	42.74
	B.43330	B.35247 x B.3337	181 (17)	35	21.2	43.95
XIV	B.37161	Standard ..	77 (6)	11	21.9	32.16
	B.34104	" ..	139 (22)	70	23.0	42.31
	B.43336	B.35247 x B.3337	187 (11)	58	22.0	41.88
	B.43337	" x "	174 (11)	20	21.6	54.27
	B.43346	B.37227 x B.3337	160 (14)	78	21.5	46.70
	B.43349	B.37227 x B.3337	111 (9)	87	21.4	46.61
	B.43350	" x "	140 (12)	56	22.1	44.29
	B.43358	B.3365 x B.34104	109 (4)	30	22.5	37.50
XV	B.37161	Standard ..	82 (3)	31	20.5	32.77
	B.34104	" ..	171 (12)	67	22.6	49.79
	B.43375	B.35197 x B.34104	87 (4)	29	22.9	39.13
	B.43380	B.35197 x Co.281	140 (11)	70	21.8	44.20
	B.43388	B.35247 x B.3337	180 (14)	82	20.1	50.40
XVI	B.37161	Standard ..	77 (6)	17	21.4	29.15
	B.34104	" ..	138 (22)	38	23.4	46.61
	B.43389	B.35247 x B.3337	180 (4)	48	21.8	42.74
	B.43391	" x "	166 (6)	2	20.5	55.04
	B.43398	" x "	213 (6)	41	22.1	46.70
	B.43403	B.35247 x P.O.J. 2878	144 (5)	55	21.7	45.75
	B.43413	M.D.47 x Co.290	147 (7)	46	21.7	44.98

(vii) PROGRESS WITH SEEDLINGS OF THE B.42' SERIES

These were reaped as plant canes in the Second Year Seedling Trials in 1944. The selections were multiplied at Codrington and one was planted in the Select Seedling Trials to be reaped in 1946. The remaining two did not grow well owing to the weedy condition of the plots due to labour difficulties and insufficient planting material was available to warrant their inclusion in the Select Seedling Trials. These seedlings will now be included in the Third Year Seedling Trial to be laid down in November, 1945.

Unfortunately, one of the Ratoon Second Year Trials at Pool Plantation was burnt in February, 1945, and the other at Todds could not be harvested owing to difficulties in fitting it into the programme due to labour disturbances.

(viii) SELECT SEEDLING AND CO-OPERATIVE VARIETY TRIALS

A. THE SEEDLINGS TESTED.

(1) *Select Seedling Trials*

Plant Canes	B. 3337	B. 34104	B. 37193
	B. 3439	B. 37161	B. 38155
	B. 38212	B. 4146	B. 41203
	B. 39177	B. 4148	B. 41204
	B. 4098	B. 4158	B. 41211
	B. 4110	B. 4196	B. 41227
	B. 4111	B. 41103	B. 41228
	B. 4145	B. 41104	B. 41238
1st Ratoons	B. 3337	B. 35245	B. 4098
	B. 34104	B. 37161	B. 40105
	B. 35187		

(2) *Co-Operative Variety Trials*

Plant Canes	B. 3439	B. 37161
	B. 34104	B. H.10(12)

B. AN ECOLOGICAL CLASSIFICATION OF THE TRIALS.

The classification is similar to that used in recent years, and is as follows:—

- (a) Black coral limestone soils where the average seasonal rainfall is low. On account of low rainfall, ratooning is difficult, and cane tonnages are usually low. Stations in this category were:—

Select Seedling Trials

Plant Canes Congo Road, Spencers, Spring Garden.

- (b) Black coral limestone soils of low-intermediate rainfall. On account of better rainfall than in category (a), a certain amount of ratooning is practised. This is increasing as stronger ratooning varieties become available. The stations in this category were:—

Select Seedling Trials

Plant Canes Searles, Jordans, Pickerings.
1st Ratoons Staple Grove.

- (c) Valley deep black coral limestone area, low-intermediate rainfall. This area may suffer periodic water logging. Soils, especially sub-soils, tend to a heavy texture, and root diseases are commonest here. Varieties resistant to the root disease complex are therefore necessary. Stations in this category were:—

Select Seedling Trials

Plant Canes Carrington.

- (d) Red coral limestone area, intermediate to high rainfall. One to four ratoons are grown here. The stations in this category were:—

(1) *Select Seedling Trials*

Plant Canes Blowers, Haggatts, Fisher Pond, Rugby, Henley.

1st Ratoons Clifton Hall, Colleton, Locust Hall.

(2) *Co-operative Variety Trials*

Plant Canes Vauchuse, Easy Hall, Lammings, Claybury.

- (e) Sandy coral limestone soils, where the average annual rainfall is low to intermediate. These soils on account of their comparatively light texture are liable to dry out rapidly.

(1) *Select Seedling Trials*

Plant Canes Gibbes, Alleynedale.

1st Ratoons Alleynedale.

(2) *Co-operative Variety Trials*

Plant Canes Mount Standfast, Haymans, Six Mens, Sandy Lane.

C. RAINFALL DURING THE SEASONS.

Month	1920-21 to 1939-40	1940-41	1941-42	1942-43	1943-44	1944-45
January ..	3.33	2.32	1.46	2.17	2.83	1.48
February ..	1.96	0.44	0.48	1.72	1.08	1.25
March ..	1.58	5.46	1.50	1.07	2.68	0.94
April ..	1.61	0.56	1.55	4.10	2.24	2.01
May ..	1.93	1.11	1.91	1.06	4.31	6.64
June ..	4.41	2.54	3.02	4.23	4.03	3.44
July ..	6.31	5.50	4.72	7.41	3.74	12.00
August ..	6.24	6.50	5.11	4.63	4.78	7.41
September ..	7.22	6.17	10.08	5.55	5.82	9.28
October ..	7.55	6.07	8.15	6.91	10.75	10.35
November ..	9.46	7.18	7.61	9.81	7.19	8.96
December ..	4.09	1.89	3.40	4.64	7.94	5.57
January ..	3.29	1.46	2.17	2.83	1.48	0.84
February ..	1.86	0.48	1.72	1.08	1.25	1.28
March ..	1.73	1.50	1.07	2.68	0.94	0.59
Month	62.57	49.18	53.95	59.89	61.06	72.04

D. RESULTS OF THE TRIALS

In the Select Seedling Plant Cane Trials, the following data are obtained :— (1) cane tonnage), (2) number of rotten canes per plot, (3) complete cane chemical analysis from plot sample bundles and so (4) a calculation of the sucrose yield per acre.

N.B. :—Owing to a shortage of trained analytical staff during the reaping season, it was decided to take samples for chemical analysis from two only of the four replicates of each seedling in each experiment.

In the Select Seedling Ratoon Trials, cane tonnages, number of rotten canes and Zeiss Hand Refractometer Brix values are obtained.

In the Co-operative Variety Trials, cane tonnages and Zeiss Hand Refractometer Brix values only are obtained.

The results from the several categories are considered here.

CATEGORY A.

Results are given in Table VI.

TABLE VI.

SELECT SEEDLING TRIALS—PLANT CANES

Estates and Dates of Harvesting :—Congo Road—9th and 10th March, 1945; Spencers—6th and 7th March, 1945; Spring Garden—28th February and 1st March, 1945.

Variety	CANE — TONS PER ACRE						PER CENT SUCROSE IN CANE						QUOTIENT OF PURITY						SUGAR — TONS PER ACRE						NO. ROTTEN CANES PER PLOT					
	Congo Road		Spencers		Spring Garden		Congo Road		Spencers		Spring Garden		Congo Road		Spencers		Spring Garden		Congo Road		Spencers		Spring Garden		Congo Road		Spencers		Spring Garden	
	Group I	Group	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II
B.3337	—	—	—	—	28.53	—	—	—	—	—	15.4	—	—	—	—	—	89.3	—	—	—	—	—	4.40	—	—	—	—	—	7	—
B.3439	—	—	—	—	27.29	—	—	—	—	—	16.2	—	—	—	—	—	86.1	—	—	—	—	—	4.38	—	—	—	—	—	4	—
B.34104	—	33.83	29.03	32.77	27.60	26.99	—	17.6	17.9	17.9	16.3	17.3	—	88.9	91.2	91.1	85.9	88.9	—	5.96	5.19	5.87	4.50	4.67	—	16	20	19	14	10
B.37161	41.04	40.38	35.66	38.61	29.48	29.88	16.8	16.8	16.0	15.5	16.0	14.9	91.5	94.4	89.3	89.9	89.8	87.3	6.89	6.78	5.72	5.97	4.72	4.45	13	18	8	18	10	11
B.39177	—	—	—	—	—	24.44	—	—	—	—	—	17.5	—	—	—	—	—	89.5	—	—	—	—	4.27	—	—	—	—	—	—	8
B.4098	—	—	—	39.73	—	28.44	—	—	—	—	—	17.3	—	—	87.3	—	87.7	—	—	—	6.56	—	4.92	—	—	—	—	17	—	9
B.4110	32.99	—	26.96	—	24.06	—	16.8	—	16.7	—	16.6	—	91.8	—	90.2	—	88.4	—	5.54	—	4.50	—	4.00	—	15	—	11	—	15	—
B.4111	—	28.10	—	—	—	—	—	17.7	—	—	—	—	—	94.0	—	—	—	—	—	4.96	—	—	—	—	—	33	—	—	—	—
B.4145	—	—	29.28	—	—	—	—	—	15.6	—	—	—	—	—	88.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
B.4146	—	—	—	—	—	21.35	—	—	—	—	—	16.8	—	—	—	—	—	—	—	—	—	—	—	3.58	—	—	—	—	—	10
B.4158	35.44	—	30.14	—	—	26.39	16.6	—	15.3	—	—	13.6	88.0	—	84.1	—	—	—	5.71	—	4.61	—	—	3.77	17	—	36	—	—	15
B.4196	—	30.54	—	29.83	—	—	—	16.7	—	16.1	—	—	—	90.0	—	88.5	—	—	—	5.12	—	4.79	—	—	—	21	—	20	—	—
B.41203	—	34.40	—	29.06	—	25.15	—	17.1	—	17.1	—	16.8	—	89.0	—	89.3	—	88.5	—	5.86	—	4.97	—	4.23	—	18	—	32	—	12
B.41204	35.55	—	30.73	—	23.11	—	17.7	—	16.0	—	16.4	—	91.6	—	88.4	—	88.4	—	6.29	—	4.91	—	3.75	—	10	—	10	—	12	—
B.41211	46.43	—	43.39	—	33.62	—	16.4	—	15.6	—	16.1	—	88.4	—	85.7	—	86.0	—	7.61	—	6.77	—	5.42	—	13	—	9	—	7	—
B.41227	—	39.30	—	39.12	—	30.62	—	—	—	16.1	—	16.9	—	91.6	—	85.9	—	—	—	6.70	—	6.28	—	—	—	15	—	20	—	6
B.41228	37.37	—	28.09	—	29.01	—	16.3	—	15.9	—	15.5	—	89.7	—	90.1	—	—	—	6.08	—	4.47	—	4.50	—	15	—	21	—	13	—
B.41238	—	35.37	—	—	—	—	—	16.0	—	—	—	—	—	88.4	—	—	86.5	—	5.66	—	—	—	—	—	—	25	—	—	—	—

The following differences between mean yields may be considered significant :—

	Congo Road		Spencers		Spring Garden	
	Group I	Group II	Group I	Group II	Group I	Group II
Sugar—Tons per acre	± 0.91	± 1.01	± 1.06	± 0.64	± 0.75	± 0.68
Cane—Tons per acre	± 5.22	± 5.18	± 6.29	± 3.70	± 3.32	± 4.07

The variety B.41211 gave outstanding yields of cane and sugar at all three stations, significantly exceeding all other varieties tried in yields of cane and sugar with the sole exception of B.37161 in sugar. Here the differences in sugar yields at all stations only just failed to be significant. Of the other varieties tried, B.4098 and B.41227 also gave good yields of cane and sugar. The remaining varieties were not up to the standard of the commercial varieties B.34104 and B.37161 under the ecological conditions of this category, with the exception of B. 4098 and B.41227, neither of which is at its best in this category.

CATEGORY B.

Results are given in Tables VII and VIII.

TABLE VII.

SELECT SEEDLING TRIALS—PLANT CANES

Estates and Dates of Harvesting :—Searles—20th February and 8th March, 1945.
Pickering's—13th and 14th March, 1945.
Jordans—17th and 20th March, 1945.

Jordans—17th and 20th March, 1945.																															
Variety	CANE — TONS PER ACRE						PER CENT SUCROSE IN CANE						QUOTIENT OF PURITY						SUGAR — TONS PER ACRE						NO. ROTTEN CANES PER PLOT						
	Searles		Pickering's		Jordans		Searles		Pickering's		Jordans		Searles		Pickering's		Jordans		Searles		Pickering's		Jordans		Searles		Pickering's		Jordans		
	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	
B. 3337 ..	35.14	—	38.13	—	—	—	14.4	—	14.9	—	—	—	90.8	—	90.7	—	—	—	5.06	—	5.67	—	—	—	4	—	20	—	—	—	—
B. 3439 ..	—	—	35.56	—	—	—	—	—	16.6	—	—	—	—	—	89.0	—	—	—	—	—	5.90	—	—	—	—	—	9	—	—	—	—
B. 34104 ..	33.19	—	—	30.60	—	39.02	15.3	—	—	17.5	—	15.8	90.3	—	—	91.5	—	—	5.08	—	—	5.35	—	—	1	—	—	16	—	46	
B. 37161 ..	40.21	37.80	36.40	34.27	43.32	45.35	14.8	16.0	15.7	15.8	16.0	14.9	91.0	91.7	91.2	90.5	89.4	88.4	5.95	5.46	5.72	5.41	6.93	6.74	5	3	22	25	30	46	
B. 37193 ..	—	40.45	—	36.60	—	46.43	—	16.1	—	15.9	—	14.2	—	91.7	—	90.0	—	86.7	—	5.93	—	5.82	—	—	6.59	—	2	—	14	36	
B. 38155 ..	—	—	—	—	25.93	—	—	—	—	—	16.9	—	—	—	—	—	89.2	—	—	—	—	—	4.39	—	—	—	5	—	30	—	
B. 38212 ..	—	31.52	—	29.34	—	—	—	16.7	—	17.4	—	—	—	90.7	—	90.2	—	—	—	4.93	—	5.08	—	—	—	—	—	—	—	—	
B. 39177 ..	—	—	34.39	—	—	—	—	—	—	—	—	—	—	—	91.4	—	—	—	—	6.56	—	—	—	—	—	—	12	—	—	—	
B. 4098 ..	—	42.90	—	—	—	—	—	16.4	—	—	—	—	88.4	—	89.1	—	89.0	—	5.86	—	5.05	—	7.06	—	—	1	—	22	—	48	
B. 4110 ..	37.08	—	32.18	—	44.40	—	15.8	—	15.7	—	15.9	16.5	—	—	—	—	87.9	87.9	—	—	—	—	6.40	—	—	—	—	—	28	—	
B. 4111 ..	—	—	—	—	35.96	—	—	—	—	—	—	—	—	—	89.9	—	—	—	—	—	—	—	—	—	—	—	11	—	—	—	
B. 4145 ..	—	—	29.33	—	44.47	—	—	—	15.5	—	14.4	15.8	—	90.6	—	—	—	88.1	5.19	5.50	—	—	—	5.88	—	37	—	—	—	—	
B. 4148 ..	—	34.44	—	—	—	37.21	—	16.0	—	—	—	—	84.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
B. 4158 ..	36.03	—	—	—	—	—	14.4	—	—	—	15.6	—	—	90.5	—	—	86.8	—	—	4.52	—	—	—	4.95	—	6	—	59	44	79	
B. 4196 ..	—	26.37	—	—	31.91	—	—	16.5	—	—	—	—	—	—	—	—	89.6	—	—	—	—	—	—	—	—	—	—	—	—	—	
B. 41104 ..	—	—	29.70	—	35.86	—	—	—	18.5	—	17.7	—	—	90.3	88.9	—	—	—	—	5.50	—	5.51	4.79	—	—	—	13	—	100	—	
B. 41203 ..	—	31.24	28.66	—	—	—	—	17.0	—	16.7	—	—	—	—	—	—	—	—	5.28	—	—	—	—	—	—	—	3	—	—	—	
B. 41204 ..	33.84	—	—	—	—	—	15.6	—	—	—	—	—	90.5	—	—	—	—	—	6.76	—	—	—	5.61	—	—	—	3	—	60	251	
B. 41211 ..	44.19	—	43.44	—	34.72	—	15.3	—	15.1	—	16.1	15.0	88.6	—	83.6	88.9	86.3	—	—	—	6.54	—	—	—	—	—	—	30	—	193	
B. 41227 ..	—	40.79	38.33	—	44.98	—	—	16.2	—	16.5	—	—	—	88.2	—	—	84.7	85.4	5.15	6.70	—	6.33	—	6.75	—	4	—	—	21	—	
B. 41228 ..	33.67	—	—	—	42.23	—	15.3	—	—	—	13.9	12.7	89.3	—	—	84.8	—	—	—	—	—	—	5.87	—	—	—	—	—	—	191	
B. 41238 ..	—	—	34.12	—	30.19	—	—	—	—	14.9	—	—	—	—	—	—	—	—	—	—	—	5.08	—	3.82	—	—	—	—	24	—	—

The following differences between mean yields may be considered significant :—

	Searles		Pickering's		Jordans	
	Group I	Group II	Group I	Group II	Group I	Group II
Sugar — Tons per acre	± 0.63	± 0.65	± 0.80	± 0.76	± 1.15	± 0.69
Cane — " " "	± 4.13	± 4.09	± 4.13	± 4.57	± 6.71	± 4.60

TABLE VIII.

Select Seedling Trials—1st Ratoons.

Estate — Staple Grove Harvested 8th and 9th March, 1945.

Variety	Cane—Tons per acre		Z. H. R. Brix		No. Rotten Canes per Plot	
	Group I	Group II	Group I	Group II	Group I	Group II
B.34104 ..	29.53	—	24.3	—	11	—
B.37161 ..	33.40	33.07	22.9	22.9	8	7
B.4098 ..	31.15	31.58	24.0	24.5	7	13
B.40105 ..	18.42	—	23.3	—	10	—

The following differences between mean yields may be considered significant :—

Group I $\pm$ 7.21 tons cane per acre.

Group II Insignificant.

In the Select Seedling Trials, Plant Canes, the seedling B.41211 gave outstanding yields of cane and sugar, except at Jordans, where it suffered severely from rat damage and weevil borer attack. At this station it also showed some rotting, indicating that it is an early ripening cane.

The seedling B.37193 gave a creditable performance at all three stations.

The seedling B.41227 also gave outstanding yields of cane and sugar at all stations, outyielding the standard variety B.37161 in sugar at all stations and in cane at Searles and Pickerings. It does, however, arrow very heavily under Barbados conditions.

Of the other varieties tried, B.4110 and B.4145 are promising, but do not quite reach the standard of B.37161 under the conditions of this category. Both seedlings tend to arrow heavily.

In the Select Seedling Ratoon Trial at Staple Grove the standard variety B.37161 and the seedling B.4098 were outstanding, the former giving the better yield of cane, while the latter possesses an excellent juice, and trashes better. The seedling B.40105 gave a very disappointing yield in this ratoon trial after being outstanding in the plant cane trial.

CATEGORY C.

The results are presented in Table IX.

TABLE IX.

Select Seedling Trials Plant Canes.

Estate — Carrington. Harvested 21st and 22nd March, 1945

Variety	Cane—Tons per acre		Per cent. Sucrose in Cane		Quotient of Purity		Sugar—Tons per acre		No. of Rotten Canes per plot	
	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II
B. 3337 ..	33.62	—	15.0	—	90.7	—	5.04	—	6	—
B. 34104 ..	31.06	29.63	17.7	17.0	92.3	92.0	5.49	5.03	20	23
B. 37161 ..	33.79	32.05	16.3	15.3	90.6	90.3	5.50	4.89	17	12
B. 37193 ..	—	31.81	—	16.7	—	—	—	5.30	—	9
B. 38155 ..	—	25.58	—	16.9	—	89.8	—	4.32	—	29
B. 4098 ..	—	36.85	—	17.7	—	89.3	—	6.53	—	7
B. 4110 ..	31.73	—	16.9	—	90.9	—	5.35	—	16	—
B. 4111 ..	—	23.05	—	17.5	—	89.8	—	3.77	—	29
B. 4145 ..	28.07	—	14.0	—	87.6	—	3.93	—	23	—
B. 41103 ..	—	22.66	—	16.4	—	88.7	—	3.71	—	49
B. 41104 ..	25.82	—	18.5	—	91.2	—	4.78	—	28	—
B. 41211 ..	39.91	—	16.6	—	88.5	—	6.88	—	53	—
B. 41227 ..	—	36.29	—	16.9	—	89.8	—	6.13	—	15
B. 41228 ..	34.59	—	15.4	—	87.8	—	5.32	—	19	—

The following differences between mean yields may be considered significant:—

Group I	± 0.60	} Tons sugar per acre	± 4.77	} Tons cane per acre
Group II	± 0.53			

In Group I, the seedling B.41211 significantly exceeded all other varieties tried in this experiment both on yield of cane and sugar. The seedling B.41228 also exceeded the standard variety B.37161 on yield of cane, but was beaten by the latter on yield of sugar. The only other varieties worth mentioning in this group are B.3337 and B.34104. The former approached B.37161 on yield of cane, but was beaten on sugar, while the latter was beaten on cane, but approached B.37161 very closely on yield of sugar.

In Group II of this trial, the seedlings B.4098 and B.41227 were outstanding, outyielding all others on cane and sugar. The seedling B.37193 also put up a good performance, beating both the standard varieties, B.37161 and B.34104 on yield of sugar.

CATEGORY D.

The results are presented in Tables X, XI and XII.

TABLE X.

Select Seedling Trials—Plant Canes. Group I

Estates and Dates of Harvesting :— Rugby, 10th April, 1945; Blowers; 12th April, 1945; Haggatts, 17th April, 1945; Henley, 24th April, 1945; Fisher Pond, 26th April, 1945.

Variety	Cane—Tons per Acre					Percent Sucrose in Cane					Quotient of Purity					Sugar—Tons per Acre					No. Rotten Canes per Plot				
	Rugby	Blowers	Haggatts	Henley	Fisher Pond	Rugby	Blowers	Haggatts	Henley	Fisher Pond	Rugby	Blowers	Haggatts	Henley	Fisher Pond	Rugby	Blowers	Haggatts	Henley	Fisher Pond	Rugby	Blowers	Haggatts	Henley	Fisher Pond
B. 3337 ..	—	—	—	47.38	—	—	—	—	13.1	—	—	—	—	89.9	—	—	—	—	6.18	—	—	—	20	—	
B. 3439 ..	—	—	—	—	—	—	—	15.5	—	—	—	—	85.7	—	—	—	—	7.39	—	—	—	49	—	—	
B. 34104 ..	38.68	42.14	47.73	41.68	36.93	14.9	16.1	15.2	14.3	13.6	86.0	91.6	87.3	86.8	89.7	5.75	6.78	6.70	5.97	5.02	47	48	61	83	60
B. 37161 ..	47.57	41.55	44.00	42.47	41.86	15.4	15.8	13.7	14.7	13.7	89.5	90.3	86.4	90.1	89.9	7.33	6.57	6.70	6.24	5.72	26	18	44	43	36
B. 38155 ..	29.90	—	42.04	27.29	15.65	16.5	—	—	16.4	15.1	88.3	—	—	91.6	90.3	4.93	—	5.78	4.51	2.37	143	—	—	88	330
B. 39177 ..	—	—	26.93	—	—	—	—	16.1	—	—	—	—	90.9	—	—	—	—	4.34	—	—	—	—	155	—	—
B. 4098 ..	—	53.57	—	—	—	—	16.3	—	—	—	—	86.7	—	—	—	—	8.73	—	—	—	—	36	—	—	—
B. 4110 ..	47.39	49.47	50.56	39.77	42.94	15.3	15.5	15.3	14.6	13.5	88.1	89.3	87.9	89.9	87.7	7.24	7.67	7.77	5.82	5.81	18	50	32	36	35
B. 4145 ..	44.43	—	42.23	40.88	—	14.3	—	14.2	14.9	—	82.9	—	87.3	90.2	—	6.35	—	6.00	6.08	—	34	—	72	44	—
B. 4146 ..	—	38.00	—	—	39.00	—	15.8	—	—	14.5	—	—	87.0	—	89.1	—	—	6.00	—	5.65	—	—	35	—	32
B. 4158 ..	—	24.83	14.58	—	—	—	13.8	14.4	—	—	—	80.0	86.8	—	—	—	3.43	2.12	—	—	—	153	206	—	—
B. 41104 ..	35.97	—	—	30.17	—	17.8	—	—	14.6	—	90.1	—	—	89.6	—	6.40	—	—	4.41	—	58	—	44	—	—
B. 41204 ..	33.11	—	—	—	—	13.4	—	—	—	—	78.3	—	—	—	—	4.43	—	—	—	—	72	—	—	—	—
B. 41211 ..	45.64	41.01	39.54	44.54	29.45	13.6	13.9	14.4	13.9	13.6	77.8	80.4	84.3	83.4	84.4	6.23	5.69	5.70	6.18	4.00	122	144	166	63	342
B. 41228 ..	—	45.88	—	—	39.98	—	14.6	—	—	13.3	—	85.9	—	—	88.5	—	6.70	—	—	5.31	—	29	—	—	28

Group II

B. 3337 ..	45.82	—	34.17	—	44.03	15.0	—	12.8	—	13.4	90.6	—	87.0	—	88.8	6.86	—	4.39	—	5.89	29	—	67	—	25
B. 34104 ..	38.82	—	38.36	37.87	35.24	15.7	—	15.1	13.4	14.3	88.7	—	88.4	85.2	90.5	6.08	—	5.80	5.08	5.03	36	—	90	92	44
B. 37161 ..	45.11	—	40.55	43.43	43.74	13.6	—	14.3	13.3	13.5	88.6	—	87.2	87.2	89.5	6.13	—	5.83	5.78	5.90	27	—	55	34	41
B. 37193 ..	—	—	48.61	47.42	45.33	—	—	14.0	12.7	14.7	—	—	86.9	84.7	89.4	—	—	6.83	6.01	6.66	—	—	63	54	28
B. 4098 ..	52.63	—	54.91	—	47.28	15.2	—	14.5	—	14.1	84.1	—	88.6	—	88.4	8.00	—	7.96	—	6.65	30	—	47	—	22
B. 4111 ..	38.13	—	—	33.37	46.50	15.9	—	—	13.9	14.3	87.8	—	—	85.9	89.4	6.06	—	—	4.63	5.21	34	—	—	49	44
B. 41103 ..	23.70	—	—	24.51	21.19	15.5	—	—	14.0	14.3	87.5	—	—	87.6	88.7	3.68	—	3.43	3.02	156	—	—	110	143	
B. 41227 ..	40.56	—	47.85	42.57	45.38	14.3	—	14.8	12.9	14.0	84.0	—	86.3	83.1	87.5	5.79	—	7.08	5.48	6.34	168	—	62	213	111
B. 41228 ..	—	—	48.99	—	—	—	—	13.6	—	—	—	—	83.9	—	—	—	—	6.66	—	—	—	—	43	—	—
B. 41238 ..	43.03	—	44.78	38.41	—	12.9	—	13.5	11.7	—	79.1	—	84.4	79.9	—	5.54	—	6.04	4.51	—	51	—	77	112	—

N.B.:—In Group II, more than half of the plots at Blowers were severely infested with cow-itch and could not be harvested. This experiment has accordingly been omitted. However, the results from the plots reaped only tend to confirm results obtained at other stations in this category. The following differences between mean yields may be considered significant:—

	Rugby		Blowers		Haggatts		Henley		Fisher Pond	
	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II
Sugar—Tons per acre ..	± 1.15	± 0.85	± 1.15	—	± 1.13	± 1.39	± 1.22	± 0.98	± 0.89	± 0.70
Cane —Tons per acre ..	± 7.13	± 5.36	± 7.49	—	± 6.70	± 8.53	± 7.82	± 6.88	± 6.41	± 5.34

TABLE XI.

Select Seedling Trials — First Ratoons

Estates and Dates of Harvesting:—
Locust Hall—20th April, 1945
Colleton —26th and 27th March, 1945
Clifton Hall—18th and 19th April, 1945

Variety	Cane—Tons per acre						Z. H. R. Brix						No. of Rotten Canes per Plot					
	Locust Hall		Colleton		Clifton Hall		Locust Hall		Colleton		Clifton Hall		Locust Hall		Colleton		Clifton Hall	
	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II
B. 3337 ..	32.63	—	—	—	—	—	21.4	—	—	—	—	—	3	—	—	—	—	—
B. 34104 ..	30.06	—	39.47	39.78	53.58	40.36	24.5	—	21.8	23.0	22.7	23.3	36	—	108	93	69	30
B. 35187 ..	—	—	—	35.87	—	34.65	—	—	—	20.9	—	20.6	—	—	—	42	—	32
B. 35245 ..	—	—	30.79	—	23.72	—	—	—	21.8	—	22.0	—	—	—	69	—	28	—
B. 37161 ..	32.84	—	43.43	43.10	—	46.69	23.0	—	21.6	21.4	—	21.7	3	—	47	44	—	21
B. 4098 ..	36.00	—	45.08	48.12	54.13	44.06	23.6	—	22.0	22.5	23.3	21.9	13	—	83	30	29	21
B. 40105 ..	—	—	—	—	31.96	—	—	—	—	—	23.0	—	—	—	—	—	15	—

The following differences between mean yields may be considered significant:—

	Locust Hall		Colleton		Clifton Hall	
	Group I	Group II	Group I	Group II	Group I	Group II
Tons cane per acre ..	± 3.30	—	± 4.84	± 6.67	± 8.12	± 7.58

TABLE XII.
Co-operative Variety Trials — Plant Canes

Estates and Dates of Harvesting :— .. { Vauchuse —15th and 16th March, 1945.
Easy Hall—12th and 13th April, 1945.
Lammings—23rd and 24th April, 1945.
Claybury —16th April and 12th June, 1945.

Variety

Cane — Tons per acre

Z. H. R. Brix

TABLE XII.

Co-operative Variety Trials — Plant Canes

Variety	Cane — Tons per acre				Z. H. R. Brix		
	Vaucluse	Easy Hall	Lammings	Claybury	Vaucluse	Easy Hall	Lammings
B.H.10(12)	46.14	37.21	40.79	28.16	21.8	21.5	21.0
B.34104 ..	45.28	39.12	42.97	36.79	22.4	21.7	20.4
B.37161 ..	44.85	38.71	52.79	41.13	20.9	21.7	20.4
							21.4
							20.7
							19.0

Estates and Dates of Harvesting:— { Vaucluse —15th and 16th March, 1945.
 { Easy Hall—12th and 13th April, 1945.
 { Lammings—23rd and 24th April, 1945.
 { Claybury —16th April and 12th June, 1945.

The following differences between mean yields may be considered significant:—

Vaucluse — Insignificant.
 Easy Hall — Insignificant.
 Lammings — ± 4.17 } tons cane per acre.
 Claybury — ± 8.32 }

Considering the Select Seedling plant cane trials, Table X, in Group I. the outstanding seedling in the one trial in which it appeared was B.4098 significantly exceeding all other seedlings in yield of sugar and cane with the exception of B.4110. The seedling B.4110 gave a good performance at all stations in this category, exceeding the standard varieties B.37161 and B.34104 on cane at four stations, and on sugar at three stations. At the other stations it was not far behind the winners in both cane and sugar. The seedling B.41211 performed fairly well at all stations, but as can be seen from the number of rotten canes per plot, this is an early ripening cane and for best results should be harvested early in the reaping season. Of the other seedlings tried, B.3337 and B.4145 performed well at the stations at which they were tried, but generally speaking were not quite up to the standard of the commercial variety B.37161. This is probably due to the fact that both these seedlings arrowed profusely in the ecological area in which these trials were carried out.

In Group II the seedling B.4098 was again outstanding, exceeding all other varieties in yield of cane and sugar, with the single exception of B.37193 which just gave a higher yield of sugar at Fisherpond. The seedling B.37193 performed exceedingly well at all stations at which it was tried. The seedlings B.3337 and B.41227 both put up good performances at the stations at which they were tried, but like B.3337, B.41227 appears to arrow too heavily to perform at its best under these ecological conditions.

In the Select Seedling Ratoon Trials, Table XI, the seedling B.4098 was outstanding at all stations. The seedling B.40105 gave a disappointing ratoon yield, after giving an exceptionally heavy yield as plant canes. The seedling B.3337 ratooned well, but was not up to the standard of the commercial variety B.37161.

In the Co-operative Variety Trials, Table XII, the variety B.37161 was generally speaking the best of the three varieties tried, particularly where reaping was delayed until late in the season as happened at Claybury. Here, half of the experiment was reaped on April 16th, and the remaining half not until June 12th on account of labour troubles. The tonnage of the variety B.H.10(12) showed a considerable drop, while the yields of the other two varieties remained fairly constant. In all cases the juice qualities suffered from the delay in reaping. This was to be expected as the canes were ripe when harvesting was first started, and heavy rains fell in May and early June, resulting in a flush of new shoots before the second half of the experiment could be harvested.

CATEGORY E.

The results are presented in Table XIII, XIV and XV.

TABLE XIII.

Select Seedling Trials — Plant Canes

Estates and Dates of Harvesting:— Alleyndedale—2nd and 3rd March, 1945.
Gibbes —15th and 16th March, 1945.

Seedling	Cane — Tons per Acre				% Sucrose in Cane				Quotient of Purity				Sugar—Tons per Acre				No. of Rotten Canes per Plot			
	Alleyndedale		Gibbes		Alleyndedale		Gibbes		Alleyndedale		Gibbes		Alleyndedale		Gibbes		Alleyndedale		Gibbes	
	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II
B. 3337 ..	—	—	—	35.17	—	—	—	15.4	—	—	—	90.8	—	—	—	5.42	—	—	—	14
B. 3439 ..	—	44.38	—	31.85	—	—	—	15.8	—	88.4	—	84.0	—	7.41	—	5.02	—	17	—	16
B. 34104 ..	38.25	—	35.37	35.00	16.8	—	16.9	15.7	89.5	—	88.7	85.3	6.43	—	5.96	5.50	13	—	30	32
B. 37161 ..	44.96	47.29	41.26	40.96	—	—	14.6	15.7	88.4	88.4	89.4	88.3	6.97	6.89	6.47	6.22	17	22	19	14
B. 37193 ..	—	45.31	—	—	15.5	14.0	—	—	—	86.0	—	—	—	6.33	—	—	—	20	—	—
B. 38155 ..	44.44	—	—	—	17.0	—	—	—	89.4	—	—	—	7.56	—	—	—	20	—	—	—
B. 38212 ..	38.90	—	—	29.93	16.3	—	—	15.5	88.3	—	—	81.4	6.34	—	—	4.64	7	—	—	20
B. 39177 ..	42.53	—	31.32	—	16.5	—	17.2	—	89.2	—	89.7	—	7.02	—	5.39	—	20	—	48	—
B. 4098 ..	—	—	—	41.80	—	—	—	16.1	—	—	—	86.1	—	—	—	6.72	—	—	—	13
B. 4110 ..	46.65	—	35.28	—	15.8	—	15.7	—	86.4	—	—	87.0	7.37	—	5.54	—	7	—	22	—
B. 4111 ..	—	39.62	—	—	—	16.6	—	—	89.3	—	—	—	—	6.57	—	—	—	17	—	—
B. 4145 ..	—	—	34.98	—	—	—	15.0	—	—	86.7	—	—	—	—	5.25	—	—	—	18	—
B. 4148 ..	—	43.50	—	—	—	14.6	—	—	87.2	—	—	—	—	6.34	—	—	—	19	—	—
B. 4158 ..	—	—	28.81	—	—	—	—	13.3	—	—	79.0	—	—	—	3.81	—	—	—	—	89
B. 4196 ..	—	44.56	—	—	—	15.4	—	—	88.8	—	—	—	—	6.85	—	—	—	18	—	—
B. 41104 ..	—	—	30.15	—	—	—	18.5	—	—	92.5	—	—	—	5.58	—	—	—	40	—	—
B. 41203 ..	—	34.67	—	—	—	15.2	—	—	85.4	—	—	—	—	5.28	—	—	100	—	—	—
B. 41204 ..	—	—	32.87	—	—	—	14.9	—	—	81.9	—	—	—	—	—	—	—	35	—	—
B. 41211 ..	54.79	—	42.16	—	14.3	—	14.2	—	82.2	—	78.7	—	7.84	—	6.00	—	22	—	52	—
B. 41227 ..	—	50.65	—	40.67	—	15.2	—	15.7	86.5	—	87.5	—	7.69	—	6.39	—	—	25	—	28
B. 41228 ..	43.48	—	—	—	15.6	—	—	—	84.2	—	—	—	6.78	—	—	—	9	—	—	—

The following differences may be considered significant:—

	Group I	Group II
Alleyndedale	± 0.89 tons sugar per acre ± 5.54 tons cane per acre	± 0.70 tons sugar per acre ± 4.49 tons cane per acre
Gibbes	± 0.58 tons sugar per acre ± 3.66 tons cane per acre	± 0.62 tons sugar per acre ± 3.93 tons cane per acre

• One plot of the variety B.4158 could not be reaped on account of cow-itch, so that the figures given are the average of three plots only. This variety was left out of the analysis of variance.

TABLE XIV.
Select Seedling Trials—1st Ratoons
Estate:— Alleynedale. Harvested 2nd and 3rd March, 1945
Group II

Variety	Cane—Tons per Acre	Z.H.R. Brix	No. Rotten Canes per Plot
B. 34104	29.72	22.5	8
B. 37161	30.01	21.6	7
B. 4098	31.74	23.2	4
B. 40105	28.45	23.1	6

Differences between mean yields are not significant.

TABLE XV.
Co-operative Variety Trials—Plant Canes
Estates and Dates of Harvesting:— Haymans 14th and 15th February, 1945
Six Mens 27th and 28th February, 1945
Sandy Lane 6th and 7th March, 1945
Mount Standfast 21st and 22nd March, 1945

Variety	Cane—Tons per acre				Z.H.R. Brix		
	Haymans	Six Mens	Sandy Lane	Mount Standfast	Haymans	Six Mens	Mount Standfast
B. 3439	26.01	36.14	42.28	30.53	23.05	21.8	23.4
B. 34104	26.68	33.44	38.02	28.21	23.60	23.6	25.6
B. 37161	28.58	42.07	47.96	29.34	21.84	23.4	23.3

The following differences between mean yields may be considered significant:—

Haymans	Insignificant
Six Mens	± 2.78 tons cane per acre
Sandy Lane	± 3.86 tons cane per acre
Mount Standfast	± 1.51 tons cane per acre

In the Select Seedling Plant Cane Trials, Group I, the seedling B.41211 gave the highest yield of cane, but was beaten on sugar at Gibbes by the standard B.37161. The difference was however insignificant. The seedling B.38155 gave a good yield of cane and sugar at Alleynedale. It has an excellent juice, but generally speaking is not up to the standard of the commercial variety B.37161. The seedling B.39177 gave good yields of sugar at both stations, but is an early cane, and as such does not come up to B.41211. In addition, it arrows very heavily. B.4110 also exceeded B.37161 on cane and sugar at Alleynedale.

In Group II, the seedling B.4098 was outstanding at Gibbes, out-yielding all others on cane and sugar. The seedling B.41227 also gave better yields of cane and sugar at both stations, than either of the standard varieties B.34104 and B.37161. The seedlings B.3439 and B.37193 gave good yields of cane and sugar at Alleynedale, but B.3439 was decisively beaten by B.37161 and B.34104 at Gibbes.

In the Select Seedling Ratoon Trial at Alleynedale, B.4098 gave the highest, and B.40105, the lowest yield of cane. The differences were however not significant. There was nothing much to choose between the juice qualities of B.34104, B.4098 and B.40105, all of which were better than B.37161.

In the Co-operative Variety Trials, B.37161 gave the highest and B.34104 the lowest yields of plant cane. The juices of B.3439 and B.34104 were on the whole better than that of B.37161.

III. DESPATCH OF SEEDLINGS TO THE PLANT QUARANTINE STATION

During November 1944, six seedlings of the B.42' series were sent to the Plant Quarantine Station in Trinidad. These seedlings are listed below together with the names of the Colonies to which they are to be sent:—

(a) *For distribution to all colonies*

B.4214
B.42114
B.42304

(b) *For distribution to Jamaica, Trinidad, British Guiana and Antigua*

B.4226
B.42231
B.42279

Of this list B.42304 is perhaps the best, but no forecast as to the commercial outcome of any of these seedlings can be made at this stage.

The seedling B.42304 showed variegated leaf symptoms in the early stages of growth under quarantine, and similar symptoms were observed in the field in Barbados. However, this seedling appears to grow away from this variegation, and none was observed on the mature canes. The Plant Quarantine Station authorities have been asked to release this seedling to contributing colonies with the warning that it is liable to show variegated leaf symptoms in the early stages of growth.

TRINIDAD

The seedling B.3337, B.34104, B.37161, B.37172, and to a less extent B. 37193 have all performed very satisfactorily in Trinidad. However, from

the results obtained it has not been possible to recommend the allocation of these varieties to any specific ecological area, except to say that B.34104 is likely to do better on loams to clays that are well supplied with moisture, while B.3337 is likely to perform best on light soils on the flat, or on soils of heavier texture on sloping lands.

Excerpts from the Acting Sugar Agronomist's report are given below :—

“Thirty-seven varietal experiments have been reaped in 1945. Twenty-three varieties were included in the trials, nineteen from Barbados, three from Coimbatore and one from Puerto Rico. Two of the varieties of the ‘B.35’ series (B.35245 and B. 35187) were reaped for the first time in trials”.

“Two experiments were reaped as standover plants, and in these trials, ‘B.37161, B.3337, and to a less extent B.37193 were superior to B.34104.”.

One crop planted experiment was reaped. The original germination was poor, and supplying was delayed for about four months owing to labour shortage, and during this time weed growth was excessive. Yields on the whole were poor. B.34104 gave the best yields, and this was no doubt due to its ability to compete with the weed growth.

Six wet season planted experiments were reaped. While it may be said that B. 37172 gave the best results on the average, there was really no very marked difference between the four varieties B. 37172, B. 37161, B.3337 and B.34104. The variety B.35245 did fairly well in two of the three trials in which it was tested. In two instances there were two trials on the same soil series. B.34104 gave the best results in one trial, and the worst in the other. The same applied to B.37161 and B.37172. The only consistent result was that B.3337 performed well on light soil types, and badly on heavy soil types.

Eighteen first ratoon experiments were reaped. Generally speaking, B.37172 gave the best results in those trials in which it appeared, and in its absence B.37161 was somewhat better than B. 3337 and B.34104. The results given by B.3337 and B.34104 on the same soil series were very inconsistent.

Eight second ratoon trials were reaped. B.37172 appeared in one of these trials, and B.37161 in four. Generally speaking, these varieties gave better results than B.3337 and B.34104, while B.3337 gave distinctly better results than B.34104.

Two third ratoon trials were reaped, and here B.3337 was superior to B.34104. The other varieties included in these trials are unworthy of mention.

From the results of the plant cane experiments which revealed no marked difference between the varieties B.37172, B.37161, B.34104 and B.3337, the only conclusion that can be drawn is that B. 3337 is suited to light soils. Also, when the experiments are considered according to the moisture relationships of the soils rather than the soil type, no marked differences between the varieties can be observed.

In the first ratoon trials, B.37172 was best irrespective of soil types or moisture group. Where this variety did not appear, B.37161 took its place. Apart from the great merit shown by these varieties, no conclusion as to the conditions specially suited to the varieties can be arrived at from the results available.

In the second and third ratoon trials, the results lead to the conclusion that B.3337 is a more powerful ratooner than B. 34104.

Recommendations:

The results of these trials, as well as general field experience with respect to the two varieties indicate that B.34104 should be planted on loams to clays that are well supplied with moisture, while B.3337 is likely to be better on light soils on the flat, or on soils of heavier texture particularly on sloping lands where a distinct shortage of moisture in the dry season is likely to occur. It appears to be essential that these two varieties be planted early in the season.

With reference to B.37161 and B.37172, the results indicate these should be extended on a fair scale to all soil types and conditions, so that adequate data should be available for making a more detailed study from the view point of commercial field and factory requirements.

The varieties harvested in Trinidad during the years 1941—1945 inclusive and the percentage of the total area under each variety are given in the table below:—

Varieties Harvested in Trinidad 1941—45

Variety	1941	1942	1943	1944	1945
Barbados					
B.H. 10 (12) ..	56.16	58.16	48.47	31.45	20.91
B. 726	2.92	1.49	1.32	1.02	0.65
B. 3439	0.38	1.00	4.05	5.64	4.44
B. 34104	0.02	0.78	8.15	17.58	24.30
B. 3337	—	—	—	2.43	7.01
Others	0.47	0.50	0.83	0.80	1.25
Coimbatore					
Co. 213	16.99	23.01	24.37	29.10	28.52
Co. 290	0.95	0.18	0.07	0.02	—
Co. 419	0.05	0.45	1.85	1.53	1.27
Co. 241	—	—	—	—	1.68
Others	0.02	0.03	0.74	1.44	0.10
Java					
P. O. J. 2878 ..	1.61	2.22	2.23	1.58	1.70
P. O. J. 213 ..	1.56	0.61	0.49	0.77	0.35
P. O. J. 36	0.03	0.02	0.04	—	—
Others	0.01	—	—	—	—
Puerto Rico					
F. C. 916	0.61	0.12	0.66	0.17	0.05
Others (R.F. 803 etc.)	0.01	0.06	0.21	0.12	0.15
British Guiana					
Diamond 10 ..	0.11	0.10	0.11	—	—
Others	0.01	0.01	—	—	—
Elsewhere					
Uba	17.42	10.03	4.17	1.66	6.30
Others	—	0.01	—	—	—
Mixed Varieties					
B.H. 10 (12) etc.	0.65	1.20	2.24	4.68	1.32

The main features revealed by this table are the continued expansion of B.34104 and B.3337. This appears to be taking place mainly at the expense of B.H.10(12). Another interesting feature is the sudden rise in the percentage of the area under Uba. This can probably be accounted for by the labour shortage in Trinidad in 1943. This variety is very vigorous, and it was probably thought that it would be better able to compete against the weeds than some of the other varieties in cultivation.

IV. PERFORMANCES OF SEEDLINGS IN CONTRIBUTING COLONIES

ANTIGUA

Results of the Trials

B.37161 was included in practically all the plant cane trials, and was perhaps the best of all the seedlings which can be regarded as having been thoroughly tested. B.37172 and B.39177 also gave outstanding performances in the trials in which they were included, particularly the former, which was always first on yield of sugar, although it was occasionally beaten on cane. B.39177 was tried in Barbados, but was found to be not quite up to the standard of B.37161. In addition it arrowed heavily, and is an early cane.

The performance of B.34104 was very variable and although in many cases it was beaten by several of the other seedlings on cane yield it was nevertheless always up among the winners on yield of sugar. It performed best on the Wetherell clay soils which have good natural drainage.

An interesting feature of these trials is the very poor performance of B.3337. This seedling was invariably at the bottom of the list, and is obviously unsuited to the Antigua soils.

In the ratoon trials, B.37161 and B.37172 were again outstanding, while B.34104 was again up with the winners on sugar yield if not on cane. The seedling B.35187 was badly beaten in ratoon trials particularly in the second ratoon stage.

The planting recommendations of the Sugar Agronomist are given below:—

ECOLOGICAL AREA	Percent of Total Area		
	B. 34104	B. 37161	B. 37172
Soils of Good Natural Drainage			
Wetherell clay	100	—	—
Fitches clay	—	100	—
Lighter soils of Blubber Valley Series	45	45	10
Wetherell-Fitches (transition) clays	45	45	10
Soils of Poor Natural Drainage			
Gunthorpe and Tomlinson clays	30	60	10*
Lindsey clay	—	100	—
Otto clay	45	45	10
Bendal clay	—	90	10
Heavier soils of the Blubber valley Series	45	45	10

* B.37172 should be confined to the non-calcareous areas of these soil types for the time being.

ST. KITTS.

Generally speaking, B.37161 and B.34104 were the best of the varieties tried in all categories, with the exception of the upper wet lands. B.3439 gave outstanding yields of plant cane in the drier lower lands, but the ratoon yields were invariably poor. In spite of this, B.3439 has given an over-all better yield of plant and ratoon sugar than B.37161 when reaped early in crop.

In the wet upper lands only one plant cane trial was harvested, and here B.34104 gave the heaviest yield of cane and sugar, and B.H.10(12) the lowest.

B.37172 has given outstanding yields of cane and sugar in Trinidad and Antigua, and it is recommended that this seedling should be tried in St. Kitts as well.

The planting recommendations of the Sugar Agronomist are given below :—

Lower Lands.

Low Rainfall : B.3439 for reaping during the first month of the crop season, both as plants and ratoons, in areas where this variety does not uproot. B.37161 for the main crop.

Intermediate and High Rainfall: B.37161 for the main crop.
Some B.34104 on the fringe of the middle lands.

Middle Lands

Intermediate and High Rainfall: B.37161 for the main crop.
Some B.34104 in areas with a deep topsoil where arrow-ing is least likely to limit cane growth.

Upper Lands.

Intermediate Rainfall: B.37161 for the main crop.
Some B.34104 in the lower upper lands with a deep topsoil.

High Rainfall: Insufficient information is available on which to base recommendations.

JAMAICA.

The sugar cane yield census in Jamaica which was discontinued some years ago has now been restarted, but unfortunately the figures are not available for inclusion in this report.

The Senior Research Officer of the Jamaica Sugar Manufacturers' Association has however supplied the following information which is of interest:—

“The majority of new plantings in the island are plants of B.34104, and “in some districts B.3439 is also being planted on a fairly large scale. Plant- “ing areas of the older varieties are diminishing rapidly. B.37161 is being “propagated to a certain extent, but these plantings are really only to be “classed as estate trial plants rather than commercial plantings. On the whole, “it appears to yield no better than B.34104. Newer varieties than these up to

“the B.40’ series are only in regular experiments or small scale nurseries.
 “The B.41’ series will go into small scale experiments next spring.”

The seedling B.37172 is highly resistant to mosaic in Jamaica, and has done exceptionally well in Trinidad. It is expected that this seedling will also do well in Jamaica, where its resistance to mosaic should be a big factor in its favour. However, it does not appear to have passed the early testing stage as yet.

Seedlings of more recent origin which should be given adequate testing in Jamaica are B.4098, B.4110, B.4145, B.41211 and B.41227.

Windward Islands

No accurate trials to compare the relative merits of the various seedlings produced by the Station have been carried out in the Windward Islands. However, a glance at the tables given below showing the varieties reaped in the 1944 crop together with the percentage of the total area occupied by each, shows that progressive estates have, in the absence of varietal recommendations, been attempting to keep pace with those islands where accurate trials have been carried out. In Grenada, B.37161 occupies the largest part of the area, followed by B.2935, B.726 and B.34104.

In St. Lucia, the position is somewhat different, as ratooning is longer—about six ratoons—and replacement is very much slower. However, the Sugar Agronomist to the Comptroller for Deveipment and Welfare in the West Indies reports that B.37161 and some B.34104 on the basis of their general reputation, are now being planted almost entirely by the estates in place of the standard variety, B.H.10(12). A list of the varieties harvested on plantations in Grenada and St. Lucia together with the percentage of the total area under each is given in the tables below:—

Varieties Harvested in Grenada, 1944.

Variety	Area Reaped (per cent)
B.H.10(12) ..	7.1
B.726	14.8
B.2935	21.6
B.3013	7.1
B.34104	14.3
B.3439	2.3
B.35187	3.4
B.37161	27.4
Others	2.0

Varieties Harvested on St. Lucia Estates, 1940—44.

Variety	Area reaped (per cent)		
	1940	1943	1944
B.H.10(12)	67.3	82.7	81.6
B.726	5.0	8.9	3.7
B.2935	22.8	3.2	2.4
B.3013	—	4.2	5.1
B.37161	—	—	1.3
Others	4.9	1.0	5.9

V. MOSAIC DISEASE INVESTIGATIONS

The determination of a satisfactory technique for the artificial transmission of mosaic disease is still considered to be of the utmost importance and all efforts are being concentrated in this direction. Last season, encouraging results were obtained by making use of conditions of high humidity at the time of and subsequent to inoculation. However, the cane used in these tests, B.37161, is known to show a degree of resistance to mosaic disease, and although a very high percentage of the plants inoculated took the disease one hundred percent take was not obtained, and in any case the numbers used were very small. The actual figures obtained are given below:—

Period during which plants were allowed to remain under high humidity conditions after inoculation	Percentage showing the disease
0 hours	40
24 "	90
48 "	70
72 "	50

N.B.—All plants were allowed to remain under conditions of high humidity for twenty-four hours prior to inoculation.

From the above figures it would appear that the optimum time during which the plants should be allowed to remain under conditions of high humidity lies somewhere between 0 and 48 hours, but as the numbers used in this experiment were very small, no definite conclusion could be drawn.

During the present season, it was decided to use B.H. 10 (12) as the standard cane, and to repeat the experiment carried out in the previous season to see if a 'take' of 100 percent could be obtained.

One hundred plants of B.H.10(12) were accordingly put in the laboratory under conditions of high humidity for twenty-four hours. Eighty of these plants were then inoculated, the other twenty being left uninoculated to serve as controls. Twenty inoculated plants plus five of the control lot were removed to the cistern after intervals of 0, 24, 48 and 72 hours respectively. Symptoms started to show up after two weeks, and the final readings were taken at nine weeks. The results are given below:—

Time under High Humidity Conditions		No. Inoculated	No. taking the disease	Percentage showing the disease
Before inoculation	After inoculation			
24 hours	0 hours	20	18	90
24 "	24 "	20	20	100
24 "	48 "	20 (2 died)	16	89
24 "	72 "	20 (4 died)	10	63
CONTROLS		0 (1 died)	0	0

The plants were given an application of sulphate of ammonia prior to being put in the laboratory. Owing to a mistake by the Foreman, a very large dose was given, and ammonia fumes in the laboratory were very strong. Some of the plants were so severely burnt that they eventually died. Others that had their leaves severely scorched still showed symptoms on new shoots when these developed. The number of plants which died in each series is shown beside the number inoculated.

From observations it would appear that the symptoms show up most quickly after periods of hot humid weather. They also tend to show up most quickly on plants which were inoculated when very young, although this does not apply to plants which for one reason or another have received a check in their growth. Symptoms sometimes appear on secondary shoots.

The period of twenty-four hours prior to and subsequent to inoculation appears to give the best results, and these plants tended also to show the symptoms quicker than the others.

To prove this point beyond further doubt a series of seventy plants has been inoculated under high humidity conditions, as described above, while a parallel series has been inoculated at the same time under atmospheric conditions in the cistern. The symptoms have not yet had time to show up, so no results can be given at the time of writing.

At the time that the above experiment was being carried out, it was seen that the method adopted, although it may be effective is cumbersome, and takes up a considerable amount of time. Further the plants taken out after 72 hours were liable to be infected with fungi. It was therefore decided to try cutting down the initial time allowed under high humidity conditions to six to twelve hours, and to explore the 0—48 hour interval after inoculation more thoroughly. Accordingly, a further series of 100 plants was divided in half, one half being placed under high humidity conditions for 6 hours prior to inoculation, and the other half for 12 hours prior to inoculation. Forty plants in each half were then inoculated, the remaining ten serving as controls. The times at which the plants were removed to the cistern together with the results obtained up to seven weeks after inoculation are given in the table below:—

Time under High Humidity Conditions		No. of Plants put in cistern	Percentage Infections
Before Inoculation	After Inoculation		
6 hours	18 hours	10 (15 control)	40
"	24 "	10	90
"	42 "	10 (5 control)	90
"	48 "	9*	100
12 "	6 "	10 (5 control)	100
"	24 "	10 (5 control)	90
"	30 "	10	90
"	48 "	10	100

* One plant was dead at the time of inoculation.

N.B.—None of the control plants have shown the symptoms as yet.

From the results obtained to date, it would appear that six hours of high humidity prior to, and 24 hours subsequent to inoculation are sufficient to enable a reasonable take to be obtained. Further it would seem that twelve hours prior to inoculation and six hours subsequent to inoculation are also sufficient to ensure a reasonable take.

From experience obtained during the course of these experiments it is thought that certain climatic factors have a bearing on the rapidity with which the symptoms show up, e.g. it has already been mentioned that periods of relatively hot, wet weather tend to accelerate the expression of the symptoms. If it can be established that, say, high relative humidity or high temperature or a combination of both tended to accelerate the expression of symptoms, then this data could be used by planters in rogueing. It is not proposed to pursue this aspect of the investigations at the moment.

The Use of Abrasives in the Artificial Transmission of Sugar Cane Mosaic.

An article published by Douglas C. Bain, of the United States Department of Agriculture, describes a new technique for artificially transmitting mosaic disease of sugar cane to young sugar cane seedlings. Briefly, the technique is first to extract the juice of the diseased cane, and mix this to a thin paste in an open dish with a suitable abrasive capable of passing through a 1,000 mesh sieve. The abrasives used in this case were carborundum, and powdered sea island sand. The mixture was taken up between the thumb and index finger and rubbed on the central spindle or on the young leaves of the plant to be inoculated until the spot appeared to be water soaked. By this method, and using the progeny of the cross Co. 281 x U.S.1694, he was able to obtain 42 and 44 percent infection with carborundum powder and sand respectively against 15 percent by the Matz method. Further trials on two months old plants of a susceptible variety are reported to have given inconsistent results.

This method as can be seen is very simple, and if it can be employed successfully, will have great advantages over the Sein and Matz methods. It was decided to try it out on B.H.10(12) plants which were growing in pots at the time. A series of one hundred plants was divided in half, one half being placed in the laboratory under high humidity conditions, the other half being allowed to remain in the cistern under normal atmospheric conditions.

Four abrasives were used viz: commercial powdered pumice stone, emery powder, a valve grinding compound with a grease base, and powdered coral limestone sand.

Ten plants in each half of this series were inoculated with each of the four abrasives, the other ten being inoculated in the usual way by the Sein method.

The inoculum for use with the abrasives was obtained by crushing a shoot of an infected stool of B.2935, which had been collected from the Mental Hospital, in a small hand mill. The juice was collected in a dark glass bottle, and used as soon as possible after being expressed.

The valve grinding compound was found to be exceedingly sharp, and inoculation was accordingly done with this substance smeared on a piece of cotton wool. Half of the plants inoculated with the other abrasives were also treated with the inoculum abrasive mixture, absorbed on cotton wool.

The plants in the laboratory were allowed to remain under high humidity conditions for six hours prior to, and for eighteen hours after, inoculation.

The results obtained to the date of writing, five weeks after inoculation, are given below:—

Abrasive	No. of Plants Inoculated		No. of Plants Showing Disease		Percentage Showing the Disease	
	High Humidity Conditions	Atmospheric Conditions R.H. 74 per cent	High Humidity Conditions	Atmospheric Conditions R.H. 74 per cent	High Humidity Conditions	Atmospheric Conditions R.H. 74 per cent
Emery Powder ..	10	10	Nil	Nil	Nil	Nil
Powdered Sand ..	10	10	Nil	Nil	Nil	Nil
Powdered Pumice ..	10	10	Nil	Nil	Nil	Nil
Valve Compound ..	10	10	Nil	Nil	Nil	Nil
Control (Needle Method)	10	10	8	8	80	80

As can be seen, the results obtained have not been very encouraging so far, but it may be that the sap of the infected plant had become oxidised before it could be used, or that the plants were too old at the time of inoculation. Further experiments will be tried using younger plants, and infective material which had been cooled before the sap is expressed. As a further precaution, a film of inert oil will be used to cover the sap after expression.

VI. INVESTIGATIONS INTO THE BORDER EFFECT OF SEEDLING CANES

During the 1944 crop, it was suspected that some of the more vigorous seedlings were taking advantage of their weaker brethren growing in adjacent plots. It was therefore decided to try to find out which of the seedlings were offenders in this way, and to what extent poaching took place.

The plots in the Select Seedling Trials are of forty cane holes each, eight cane holes long by five cane holes wide. It was decided to cut and weigh the outside row, twenty-two holes, and then to cut and weigh those remaining inside, eighteen holes. The two weights added together would then give the weight of the whole plot. This was done for nine plant cane and six ratoon trials.

The following table gives a list of the varieties which were cut in these experiments together with the differences between average weights of the inside eighteen and outside twenty-two stools in lb. per stool, and the number of experiments in which each variety was cut.

Variety	No. of trials in which variety was cut	Average Weight Differ- ernce (lb. per stool)	
		Inside 18 Stools	Outside 22 Stools
B.3337	1	2.3	—
B.3439	3	—	2.6
B.34104	9	—	6.7
B.35187	6	1.5	—
B.35245	4	0.4	—
B.37193	2	—	22.6
B.37161	13	—	12.6
B.38155	4	—	3.1
B.38212	5	—	2.2
B.3915	3	—	2.6
B.39177	3	—	2.8
B.39180	2	0.5	—
B.39237	1	9.9	—
B.39240	4	1.4	—
B.4092	4	—	4.4
B.4094	3	—	3.7
B.4096	4	4.0	—
B.4098	9	—	5.9
B.40100	2	—	2.8
B.40102	3	—	—
B.40105	3	1.5	—
B.40116	3	—	4.7

In considering the figures in this table any variety which has been cut less than four times will not be considered. This leaves us with ten varieties, viz:—B.34104, B.35187, B.35245, B.37161, B.38155, B.38212, B.39240, B.4092, B.4096 and B.4098. Of these, it would appear that B.37161, B.34104 and B.4098 are the chief offenders, while B.35187 and B.4096 appear to have suffered most from poaching. Of course within any one experiment, the average differences in weight per stool vary quite considerably from plot to plot, but this is only to be expected, as it depends to a large extent on fertility drifts, and on the adjacent varieties.

Examination of the full results of these trials seems to indicate that although the differences between the inside and outside rows may vary quite considerably in any trial, if yields are calculated from the inside rows, i.e., taking off a discard row round the plot, and from the plot as a whole, the order of merit of the various varieties does not differ appreciably. However the inclusion of the outside rows does tend to exaggerate the superiority or otherwise of any particular variety. In other words, there are indications that the best varieties are still the best, although the differences between mean yields are not so great. Further investigation of this point will, however, have to be carried out before any definite conclusion can be arrived at.

With regard to the application of the results obtained in these trials to the design of the experiments used in our seedling testing, it would obviously be impossible to institute guard rows in our First, Second or Third Year Seed-

ling Trials, as the trials would then become very much too cumbersome. Further, the writer is inclined to think that it is an advantage to allow natural vigour to express itself at these stages in the testing of seedlings.

As far as the Select Seedling Trials are concerned, the introduction of a guard row round each plot appears to be essential, as it is on the results of these trials that recommendations for commercial plantings are made. In past years, the results of these trials have in most cases, tended to exaggerate the increased yields which might have been expected from a new variety; a state of affairs which the writer would rather have reversed.

The following tables give the results of the trials on which the above article is based. It will be noted that as a general rule, the removal of guard rows does not appear to increase the accuracy of the experiment. However, this may not be the case when larger plots are used.

BULKELEY (Plant Canes) Group I			BULKELEY (Plant Canes) Group II		
Variety	Mean Yield whole plot	(Tons/ acre) inside 18 stools only	Variety	Mean Yield whole plot	(Tons/ acre) inside 18 stools only
B. 3439	27.79	27.49	B. 34104	28.76	27.67
B. 34104	27.58	26.20	B. 37161	32.21	28.60
B. 38212	26.67	26.02	B. 38155	28.74	25.60
B. 39180	26.65	26.20	B. 4092	15.93	14.57
B. 39240	28.25	28.49	B. 4096	17.86	20.38
B. 4098	32.93	32.13	B. 4098	32.10	31.31
B. 40102	23.50	22.67	B. 40100	33.07	32.31
B. 40105	32.65	34.95	B. 40116	29.52	29.02
Sig. Diff: P=0.05	±3.12	±2.47	Sig. Diff. P = 0.05	±3.39	±4.93

NICHOLAS (Plant Canes)
Group II

Variety	Mean Yield whole plot	(Tons/ acre) inside 18 stools only
B. 34104	25.12	23.32
B. 35187	25.12	26.35
B. 37161	31.13	29.85
B. 38212	28.50	27.60
B. 3915	26.22	25.92
B. 4098	32.44	30.54
B. 40105	33.66	33.00
Sig. Diff: P=0.05	±3.56	±2.82

LOCUST HALL (Plant Canes) Group I			LOCUST HALL (Plant Canes) Group II		
Variety	Mean Yield whole plot	(Tons/ acre) inside 18 stools only	Variety	Mean Yield whole plot	(Tons/ acre) inside 18 stools only
B.3439	30.51	30.41	B.3337	33.03	34.00
B.34104	31.02	29.46	B.34104	31.91	29.25
B.35245	29.39	29.71	B.35187	36.86	34.34
B.38155	28.31	25.88	B.37161	36.37	33.18
B.3915	21.48	20.30	B.38212	30.04	30.17
B.4094	29.70	26.61	B.4096	19.11	19.09
B.4098	34.55	32.36	B.4098	40.22	38.49
B.40102	31.85	32.10	B.40116	27.79	26.22
Sig. Diff. P=0.05			Sig. Diff. P = 0.05		
±5.37			±3.58		
±5.32			±4.35		

COLLETON (Plant Canes) Group I			COLLETON (Plant Canes) Group II		
Variety	Mean Yield whole plot	(Tons/ acre) inside 18 stools only	Variety	Mean Yield whole plot	(Tons/ acre) inside 18 stools only
B.34104	34.84	32.96	B.34104	36.63	33.96
B.35245	36.23	34.73	B.35187	38.06	40.78
B.37161	39.96	35.90	B.37161	45.06	42.42
B.38212	39.78	38.66	B.38155	19.82	19.61
B.4092	13.62	13.52	B.39240	32.08	28.64
B.4096	18.07	19.44	B.4094	21.85	21.21
B.4098	45.56	40.56	B.4098	48.53	43.50
B.40116	32.15	28.51	B.40100	34.79	33.31
Sig. Diff. P = 0.05			Sig. Diff. P = 0.05		
±6.71			±4.79		
±5.41			±7.40		

STAPLE GROVE (Plant Canes) Group I			STAPLE GROVE (Plant Canes) Group II		
Variety	Mean Yield whole plot	(Tons/ acre) inside 18 stools only	Variety	Mean Yield whole plot	(Tons/ acre) inside 18 stools only
B.34104	32.92	31.77	B.3439	29.24	27.63
B.37161	34.88	29.20	B.35187	33.72	30.99
B.38155	33.01	34.06	B.37161	34.47	29.88
B.4092	32.26	29.02	B.38212	28.58	26.78
B.4094	30.29	29.88	B.3915	36.50	34.91
B.4096	29.97	29.74	B.39180	30.70	32.02
B.4098	35.15	34.69	B.4098	38.41	36.34
B.40105	36.85	35.74	B.40102	24.21	24.85
Sig. Diff. P = 0.05			Sig. Diff. P = 0.05		
±4.07			±4.07		
±4.83			±5.83		

BULKELEY (1st Ratoons) Group I			BULKELEY (1st Ratoons) Group II		
Variety	Mean Yield whole plot	(Tons/ acre) inside 18 stools only	Variety	Mean Yield whole plot	(Tons/ acre) inside 18 stools only
B. 35245 ..	19.01	17.42	B. 35187	21.60	24.10
B. 37161 ..	33.97	26.92	B. 37161	33.55	27.77
B. 39193 ..	34.78	25.13	B. 39177	28.13	26.02
Sig. Diff. P = 0.05	±6.84	±7.21	Sig. Diff. P = 0.05	±4.63	Insignifi- cant

THREE HOUSES (1st Ratoons) Group I			THREE HOUSES (1st Ratoons) Group II		
Variety	Mean Yield whole plot	(Tons/ acre) inside 18 stools only	Variety	Mean Yield whole plot	(Tons/ acres) inside 18 stools only
B. 37161 ..	26.88	20.51	B. 37161	23.84	19.96
B. 37193 ..	26.06	19.60	B. 39177	17.79	17.57
B. 39240 ..	19.82	20.10	B. 39237	17.51	21.13
			B. 4092	13.82	12.71
Sig. Diff. P=0.05	±3.67	Insignifi- cant	Sig. Diff. P = 0.05	±5.28	±5.02

HANNAYS (1st Ratoons) Group I			HANNAYS (1st Ratoons) Group II		
Variety	Mean Yield whole plot	(Tons/ acre) inside 18 stools only	Variety	Mean Yield whole plot	(Tons/ acre) inside 18 stools only
B. 34104 ..	26.14	20.61	B. 35187	14.76	16.26
B. 35245 ..	14.11	16.65	B. 37161	24.85	19.71
B. 37161 ..	32.78	25.41	B. 39177	20.00	19.35
			B. 39240	17.21	18.69
Sig. Diff. P=0.05	±3.64	±4.57	Sig. Diff. P = 0.05	±2.45	±1.87

VII. FINANCIAL STATEMENT

Item	Voted 1944-45		Actual Expendi- ture .. 1944-45		Estimates for 1945-46		Estimated Expendi- ture on cane breeding by the B'dos Govern- ment for 1945-46		Estimated Total Ex- penditure on cane breeding for 1945-46	
	£	s. d.	£	s. d.	£	s. d.	£	s. d.	£	s. d.
Personal										
Emoluments										
Chairman ..	100	0 0	100	0 0	100	0 0	—		—	
Geneticist ..	200	0 0	183	6 8	—		—		—	
Asst. Botanist	550	0 0	550	0 0	575	0 0	—		—	
Two Agric Assts. ..	475	0 0	475	0 0	500	0 0	—		—	
Two Part-Time Agric. Assts.	125	0 0	125	0 0	125	0 0	—		—	
Clerical Assistance ..	50	0 0	50	0 0	50	0 0	—		—	
Statistical Clerk ..	—		—		200	0 0	—		—	
	1,500	0 0	1,483	6 8	1,550	0 0	2,235	0 0	3,785	0 0
Provident Fund	80	0 0	75	0 0	80	0 0	—		80	0 0
Seedling Trials..	1,300	0 0	1,297	12 2	1,650	0 0	2,440	0 0	4,090	0 0
Stationery and Library ..	50	0 0	44	15 6	50	0 0	45	0 0	95	0 0
Travelling ..	550	0 0	295	6 7	550	0 0	660	0 0	1,210	0 0
Incidentals ..	35	0 0	22	8 5	35	0 0	110	0 0	145	0 0
Capital ..	450	0 0	407	18 11	450	0 0	—		450	0 0
do. (Purchase of land for cane breeding)	—		1,143	10 0	—		—		—	
Total	3,965	0 0	4,769	18 3	4,365	0 0	5,490	0 0	9,855	0 0

Revenue from Contributing Colonies for 1945-46

	£	s.	d.
British Guiana	1,200	0	0
Jamaica	1,200	0	0
Leeward Islands	600	0	0
Trinidad	1,200	0	0
Windward Islands	135	0	0
	4,335	0	0
Accumulated savings up to 30th September, 1945	885	18	11
Revenue for financial year 1945-46	5,220	18	11

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APPENDIX I

Cross	Group	No. Germinated 1944-45	No. Potted 1945	No. Plant- ed in field Nursery
S. officinarum x S. spontaneum				
Co. 421 x B. 603 ..	noble x glagah	1,282	305	190
" x B.H.10(12) ..	" x "	4,006	308	200
P.O.J. 2878 x B.H.10(12) ..	" x "	169	110	94
B. 3439 x B. 39229 ..	" x "	163	119	100
B. 39253 x B. 603 ..	" x "	21	0	0
B. 37266 x " ..	" x "	17	0	0
" x B. 3337 ..	" x "	2,157	210	150
B. 3353 x " ..	" x "	2,768	210	150
B. 34102 x " ..	" x "	8,335	620	538
B. 37162 x P.O.J. 2878 ..	noble x celebes x glagah ..	855	220	150
B. 37227 x B. 3337 ..	" x " x " ..	4,118	310	200
B. 35247 x " ..	" x " x " ..	2,262	1,190	1,000
B. 35197 x " ..	" x " x " ..	627	210	200
" x B. 39257 ..	noble x glagah x local x celebes	290	192	150
		27,070	4,004	3,122
S. officinarum x S. barberi x S. spontaneum				
B. 37161 x B. (30) L7 ..	noble x chunnee x glagah ..	0	0	0
" x B. 3337 ..	" x " x " ..	620	500	461
" x B. 37175 ..	" x " x " ..	332	240	209
B. 3365 x B. 3337 ..	" x " x " ..	1,079	890	811
B. 37161 x P.O.J. 2878 ..	" x " x " ..	691	600	588
B. 41277 x B. 37193 ..	" x " x " ..	1,984	215	150
Co. 421 x B. 37175 ..	" x " x " ..	4,913	310	150
B. 35207 x " ..	" x " x " ..	400	210	150
B. 3439 x " ..	" x " x " ..	7,736	820	700
B. 3365 x B. 4148 ..	" x " x " ..	732	330	149
Co. 421 x B. 41227 ..	" x " x " ..	4,869	550	491
B. 35207 x B. 41204 ..	" x " x " ..	504	210	200
Co. 421 x B. 41229 ..	" x " x " ..	3,818	211	211
B. 35207 x P.O.J. 2878 ..	" x " x " ..	3,283	1,020	1,007
Co. 421 x B. 37193 ..	" x " x " ..	4,495	310	300
B. 3365 x B. 41203 ..	" x " x " ..	279	210	150
B. 35207 x B. 41211 ..	" x " x local ..	3,337	220	210
B. 35247 x B. 40175 ..	" x " x celebes ..	1,318	310	200
B. 3365 x B. 39274 ..	" x " x " ..	2,759	220	150
B. 35247 x B. 37193 ..	" x " x " ..	2,602	430	406
B. 35207 x B. 41261 ..	" x " x local ..	697	207	200
B. 35197 x B. 41227 ..	" x chunnee x glagah ..			
	x celebes ..	2,293	530	510
B. 35247 x B. 37175 ..	" x " x glagah ..			
	x celebes ..	1,233	310	199
		49,974	8,853	7,602
S. officinarum x S. spontaneum x S. robustum				
B. 3172 x 28N.G. 251 ..	noble x glagah x robustum ..	107	102	95
Co. 421 x C.P. 36/127 ..	" x " x " ..	1,816	320	310
C.P. 36/158 x P.O.J. 2878 ..	" x " x " ..	1,450	210	150
B. 35247 x 32M.Q. 657 ..	" x celebes x " ..	277	198	189
B. 35197 x 32M.Q. 629 ..	" x " x " ..	95	84	60
" x 28N.G. 251 ..	" x " x " ..	155	150	150
B. 35247 x 28N.G. 251 ..	" x " x " ..	0	0	0
		3,900	1,064	954

APPENDIX I—(Continued.)

Cross	Group	No. Germinated 1944—45	No. Potted 1945	No. Planted in Field Nursery
	S. officinarum x S. Barberi x S. robustum			
	Noble x Chunnee x Robustum	0	0	0
B.35207 x C.P.36/144	„ x „ x „	18	0	0
B.37161 x 32M.Q.135	„ x „ x „	2	0	0
	20		0	0
	S. officinarum x S. spontaneum x S. sinense			
	Noble x Galgah x Sinense	14	0	0
B.3439 x B.40271	„ x „ x „	6,715	230	200
Co.421 x B.35269	„ x „ x „	3	0	0
B.41277 x B.35269	„ x „ x „	62	55	55
Merthi x P.O.J.2878	„ x „ x „	296	276	261
B.40272 x B.H.10(12)	„ x „ x „	516	200	150
B.35247 x B.35269	„ x Celebes x „			
	7,606		761	666
	S. officinarum x S. Barberi x S. sinense.			
	Noble x Chunnee x Sinense	327	140	131
Kavanjire x B.37193	„ x „ x „	0	0	0
B.37161 x B.35275	„ x „ x „			
	327		140	131
	S. officinarum x S. spontaneum x S. barberi x S. sinense			
	Noble x Glagah x Chunnee x Sinense	2,052	530	290
B.3365 x B.37261	„ x „ x „	4,488	530	496
B.40272 x B.37193	„ x „ x „	9	0	0
B.37161 x B.37261	„ x „ x „	1,197	220	150
B.3365 x B.35276	„ x „ x „			
	7,746		1,280	936
	S. officinarum x S. spontaneum x S. robustum x S. sinense			
	noble x glagah x robustum x sinense	4	0	0
B.40272 x 32M.Q.579				
	S. officinarum x Erianthus maximus.			
	noble x erianthus	0	0	0
N.C.132 x B.H.10(12)	„ x „	3	0	0
Raitea x B.H.10(12)	„ x „			
	3		0	0
	S. officinarum x Erianthus arundinaceous			
	noble x erianthus	0	0	0
B.4196 x 28N.G.7				
	S. officinarum x S. spontaneum x Erianthus arundinaceus.			
	Noble x Chunnee x Sinense <i>Celebes x Erianthus</i>	0	0	0
B.35247 x 28N.G.7				
	S. officinarum x S. barberi x S. spontaneum x Erianthus arundinaceous			
	noble x chunnee x glagah x erianthus	0	0	0
B.4111 x 28N.G.7				
	S. officinarum x ?			
	noble x ?	0	0	0
Fiji 3 x B.H.10(12)				

APPENDIX I—*Concluded*

Cross	Group	No. Germinated 1944-45	No. Potted 1945	No. Planted in Field Nursery
Co.281 and its Derivatives				
B.39207 x B.34104 ..	noble x chunnee x Co.281	791	180	150
B.3365 x B.34104 ..	" x " x "	1,099	830	759
B.37161 x C.P.28/11 ..	" x " x "	45	39	32
B.37161 x C.P.28/19 ..	" x " x "	0	0	0
B.34117 x B.603 ..	" x Co.281	14	0	0
B.40157 x B.34104 ..	" x glagah x Co.281	165	89	89
B.34117 x P.O.J.2878 ..	" x " x "	319	150	150
P.O.J.2878 x B.34104 ..	" x " x "	4,946	510	510
B.3354 x B.34104 ..	" x " x "	409	409	400
B.34102 x B.34104 ..	" x " x "	7,434	720	600
B.3337 x B.34104 ..	" x " x "	297	210	185
Co.421 x B.34104 ..	" x " x "	4,753	515	500
B.38203 x B.34104 ..	" x chunnee x glagah	2,685	210	200
B.41238 x B.34104 ..	" x " x "	316	210	150
B.4111 x B.34104 ..	" x " x "	1,331	328	200
B.37162 x B.34104 ..	" x celebes x Co.281	768	220	150
B.35197 x B.34104 ..	" x " x "	8,969	1,550	1,200
Co.281 and its Derivatives				
B.35197 x Co.281 ..	noble x celebes x Co.281	2,023	506	300
B.37227 x B.34104 ..	" x " x "	1,993	310	200
B.39157 x B.34104 ..	" x " x "	169	162	149
B.35247 x C.P.28/11 ..	" x " x "	64	62	55
Uba x B.34104 ..	" x sinense x "	104	95	85
B.39254 x B.34104 ..	" x " x "	116	110	96
		38,810	7,415	6,160
Co.290 and its Derivatives				
B.40117 x B.34104 ..	Co.290 x Co.281	46	29	28
B.40105 x B.34104 ..	" x " "	149	110	90
B.4091 x B.34104 ..	" x " "	341	210	190
B.4096 x B.34104 ..	" x " "	442	220	199
B.4092 x B.34104 ..	" x " "	2	0	0
B.4094 x P.O.J.2878 ..	noble x Glagah x Co.290	107	99	94
B.35218 x P.O.J.2878 ..	" x " x "	142	124	117
B.4096 x B.3337 ..	" x " x "	5,616	210	150
B.35218 x B.(30)L7 ..	" x " x "	436	238	150
B.34102 x Co.290 ..	" x " x "	98	86	70
Co.421 x B.4098 ..	" x " x "	9	0	0
B.40116 x B.3337 ..	" x " x "	24	23	20
B.35218 x Tabongo ..	" x " x "	2,955	240	200
B.35247 x B.39178 ..	" x Celebes x Co.290	218	187	159
B.35247 x B.4098 ..	" x " x "	308	210	199
B.35247 x Co.419 ..	" x " x "	1,480	302	250
B.35218 x B.4098 ..	Co.290 x Co.290	261	210	199
B.35218 x B.40115 ..	" x " x "	92	87	80
B.3439 x Co.290 ..	noble x Co.290	115	100	100
B.37161 x B.4098 ..	noble x chunnee x Co.290	1,096	550	506
B.40272 x Co.290 ..	noble x sinense x glagah	5,977	1,620	1,620
B.35218 x C.P.36/134 ..	" x " x Co.290	45	43	42
B.35218 x C.P.36/137 ..	" x " x "	38	33	33
		19,997	4,931	4,496
	GRAND TOTALS ..	155,457	28,448	24,067

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APPENDIX II

Cross	Group	No. in Field Nursery	No. Planted in First Year Seedling Trial
B.3439 x E.K.28 ..	S. officinarum noble	151	0
B.3439 x Passeroean ..	S.officinarum x S.spontaneum noble x glagah	100	60
B.3354 x B.391 ..	" X "	100	0
B.3354 x B.603 ..	" X "	100	0
B.3353 x B.391 ..	" X "	100	0
B.3439 x B.38155 ..	" X "	200	109
B.3439 x P.O.J.2714 ..	" X "	100	60
B.3354 x B.3337 ..	" X "	300	218
B.3353 x B.3337 ..	" X "	873	518
B.34102 x B.3337 ..	" X "	300	200
B.35247 x B.391 ..	noble x celebes	310	180
B.37162 x B.3337 ..	noble x glagah x celebes	150	95
B.35197 x P.O.J.2878 ..	" X " X "	496	392
B.35247 x B.35187 ..	" X " X "	500	390
B.35247 x B.3337 ..	" X " X "	990	935
B.35247 x P.O.J.2878 ..	" X " X "	200	120
B.3439 x B.38279 ..	" X " X "	60	40
B.35197 x B.38281 ..	noble x glagah x celebes x local ..	200	120
B.35197 x B.38285 ..	" X " X "	200	120
		5,279	3,557
B.35206 x B.2935 ..	S. officinarum x S. Barberi noble x chunnee	292	0
B.3439 x C.P.36-134 ..	S.officinarum x S.robustum robustum 2nd nobilisation	200	120
B.3439 x C.P.36-145 ..	" " "	200	121
B.3439 x C.P.36-144 ..	" " "	200	114
B.3439 x C.P.32-156 ..	" " "	50	50
		650	405
B.3439 x B.37175 ..	S. officinarum x S spontaneum x S. Barberi noble x glagah x chunnee	999	731
B.3365 x B.37175 ..	" " "	399	204
B.35207 x P.O.J.2878 ..	" " "	400	288
B.39207 x P.O.J.2878 ..	" " "	139	90
B.37161 x B.35187 ..	" " "	80	42
B.37161 x P.O.J.2878 ..	" " "	2,347	1,602
B.35206 x P.O.J.2878 ..	" " "	300	180
B.37161 x B.40133 ..	" " "	150	90
B.37161 x B.39250 ..	S.officinarum x S.spontaneum x S.barberi noble x local x chunnee	100	60
B.3365 x B.39269 ..	" X " X "	100	60
B.3365 x B.39274 ..	" X " X "	200	120
B.37161 x B.40255 ..	noble x glagah x local x chunnee	200	120
B.37161 x B.40256 ..	" X " X " "	200	121
		5,614	3,708

APPENDIX II—(Continued.)

Cross	Group	No. in Field Nursery	No. Planted in First Year Seedling Trial
	S.officinarum x S.spontaneum x S. sinense		
B.3354 x B.37261	Noble x Glagah x Sinense	50	40
B.3439 x B.40270	" x " x "	150	72
B.3354 x B.37224	" x " x "	150	90
B.35247 x B.35269	" x " x "	40	40
		390	242
	S.officinarum x S.spontaneum x S. robustum		
B.3439 x C.P.36-156 ..	Noble x Glagah x Robustum	150	120
Synthetic Kassoer x C.P.36-127 ..	" " "	20	16
Co.241 x C.P.36-133 ..	" " "	200	120
		370	256
	S.officinarum x S.barberi x S.robustum		
B.3365 x C.P.36-137 ..	Noble x Chunnee x Robustum	200	117
B.37161 x C.P.31-517 ..	" " "	90	60
B.3365 x 28N.G.251 ..	" " "	300	235
		590	412
	S. officinarum x Sorghum sp. x S. barberi		
B.3365 x Early Bascom ..	Noble x Chunnee x Sorghum	50	12
	S. officinarum x S. spontaneum x Sorghum sp.		
B.3354 x Crop	Noble x Glagah x Sorghum	20	0
	S. officinarum x S. barberi x Erianthus arundinaceous		
B.37161 x C.P.36-116 ..	Noble x Chunnee x Erianthus	40	39
	S. officinarum x S. barberi x S. spontaneum x S. sinense		
B.3365 x B.40267	Noble x Chunnee x Glagah x Sinense	250	150
	Co.281 and its Derivatives		
B.3365 x B.34104	Noble x Chunnee x Co.281	400	308
B.37161 x B.34104	" x " x "	1,000	745
B.37194 x B.34104	" x " x "	100	70
B.35197 x Co.281	Noble x Celebes x Co.281	280	154
B.35197 x B.34104	" x " x "	1,029	869
B.35247 x B.34104	" x " x "	800	700
B.40164 x B.34104	Noble x Glagah x Co.281	150	90
B.34117 x P.O.J.2878 ..	" x " x "	300	180
B.39253 x B.34104	" x " x "	150	90
B.37266 x B.34104	" x " x "	100	60
B.38212 x B.34104	" x " x "	400	300
B.34102 x B.34104	" x " x "	420	300
B.39192 x B.34104	" x " x "	149	80
B.38178 x B.34104	" x " x "	80	50
Co.281 x P.O.J.2878 ..	" x " x "	350	300
B.37226 x B.34104	Noble x Sinense x Co.281	100	60
C.H.64/21 x B.34104 ..	" x " x "	100	60
C.P.36-158 x B.34104 ..	Noble x Glagah x Robustum x Co.281	200	116
		6,108	4,532

APPENDIX II—(Concluded)

Cross	Group	No. in Field Nursery	No. Planted in First Year Seedling Trial
Co. 290 and its Derivatives			
B. 35218 x C.P. 36-154	Co. 290 x noble ..	90	60
B. 3354 x B. 40118 ..	" x " x glagah ..	200	120
B. 3353 x B. 40118 ..	" x " x " ..	200	120
B. 3353 x B. 39178 ..	" x " x " ..	200	114
B. 40117 x B. 3337 ..	" x " x " ..	150	95
B. 4094 x B. 3337 ..	" x " x " ..	300	285
B. 4096 x B. 35187 ..	" x " x " ..	100	72
B. 34102 x Co. 290 ..	" x " x " ..	120	70
B. 3353 x Co. 290 ..	" x " x " ..	200	121
B. 3354 x Co. 290 ..	" x " x " ..	165	90
B. 35218 x B. 39229 ..	" x " x " ..	139	90
B. 40105 x P.O.J. 2878 ..	" x " x " ..	149	90
B. 35218 x P.O.J. 2878 ..	" x " x " ..	450	350
B. 35218 x B. 35187 ..	" x " x " ..	100	60
B. 35218 x B. 3337 ..	" x " x " ..	1,012	886
B. 3353 x B. 39175 ..	" x " x " ..	200	116
B. 4091 x P.O.J. 2878 ..	" x " x " ..	151	90
B. 40105 x B. 37193 ..	Co. 290 x noble x chunnee ..	300	200
B. 35218 x B. 38192 ..	Co. 290 x Co. 281 x glagah x noble ..	150	90
B. 35218 x B. 37175 ..	Co. 290 x glagah x chunnee x noble ..	400	240
B. 35218 x B. 4098 ..	Co. 290 x Co. 290 ..	450	336
		5,226	3,695
S. officinarum x. S. barberi x N.C. 100			
B. 35207 x N.C. 100 ..	noble x chunnee x N.C. 100 ..	90	44
	GRAND TOTALS ..	25,120	17,052

CHECKED BY
S. C.